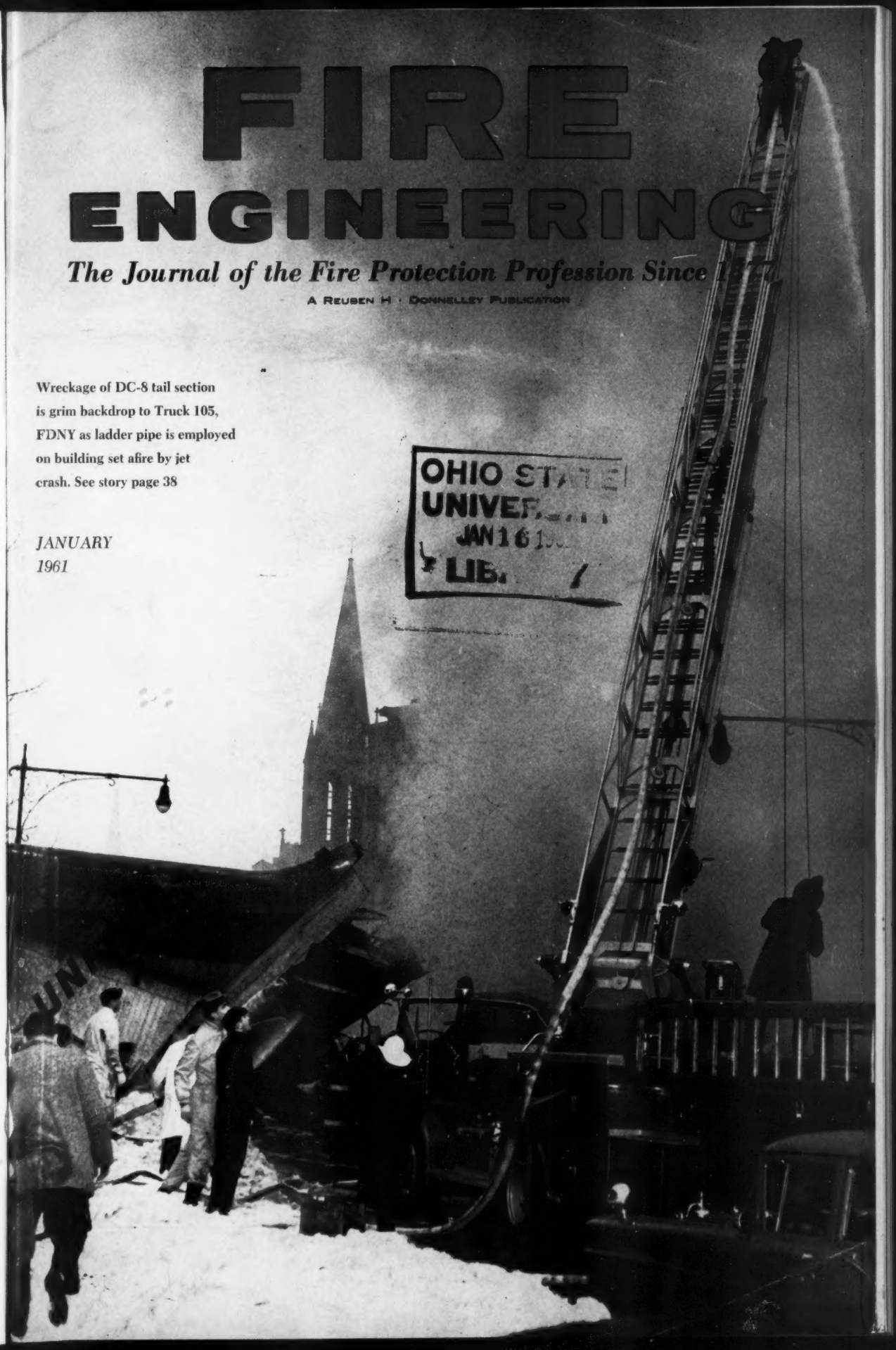
FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

A Reuben H. Donnelley Publication



Wreckage of DC-8 tail section is grim backdrop to Truck 105, FDNY as ladder pipe is employed on building set afire by jet crash. See story page 38

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IMPACT PROTECTION!

Heavy, flaming debris smashing over fire fighters' heads is among hazards that top the list of most frequent fire department injuries.

Knowing this, it's easy to see why our engineers have designed HARDBOILED® fire helmets to insure maximum impact protection, with minimum impact transmission. Even when exposed to temperatures as low as − 60° F. or as high as + 2,400° F., these tough fiber-glass shells surpass Federal and State Specifications for head protection. Yet, complete with either POWER-BLOC® or standard suspension, they weigh only 22 ounces.

We can safely say, "Bullard fire helmets are the best impact protection a fireman can use. Try it and you'll see that no fire helmet surpasses Bullard...in comfort, safety and economy."

BULLARD
INDUSTRIAL SAFETY EQUIPMENT

Write for fire department catalog.

E. D. BULLARD COMPANY · SAUSALITO, CALIFORNIA · ® 3 RIDGES FORM A BULLARD TRADE MARK, REG. U.S. PAT. OFF. COPYRIGHT 1960, E. D. BULLARD COMP

ALTERNATE BEAMS OF RED, (or other color) BACK TO BACK, PROJECT, AT EYE LEVEL, the familiar warning that clears traffic and stops pedestrians!

The Strat-O-Ray, with its four powerful sealed beams, rotating 360 degrees, is FEDERAL'S newest and finest contribution to safer emergency vehicle operation.

The tilted beams are on a separate circuit from the horizontal color lamps. The three position switch permits use of color only, to produce the effective and familiar warning of the famous Beacon Ray. The other "on" position of the switch operates all lamps for full Strat-O-Ray effect.

The Strat-O-Ray is the same size and shape as the Super Beacon Ray. It is equally durable and dependable in producing the striking contrast and impact value of its new and different signal.

Be sure you specify the FEDERAL Strat-O-Ray and the Class "Q" Coaster Siren on your new apparatus.

Ask for FEDERAL Catalog #300.

UP-DOWN! OVER-UNDER! RIGHT-LEFT! FRONT-REAR!

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FIRE ENGINEERING

VOL. 114 JANUARY, 1961 NO. 1

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Longevity

"Longevity" has various connotations. To some, the word evokes thoughts of the "golden age" of life when one may enjoy in leisure the harvest of life's activities. Others associate longevity with wisdom and stability. To still others, longevity implies venerability.

Last November FIRE ENGINEERING celebrated its 83rd anniversary of service to the fire protection field and now enters in this New Year its 84th year of publishing. Perhaps all of the above terms could be applied to "The Journal of the Fire Protection Profession" and numerous testimonials from outstanding authorities on the subject attest to the esteem which this publication has earned through the years.

The staff has no thought of resting on past laurels, however. FIRE ENGINEERING today is as youthful and zestful as its first issue. As we enter 1961, the entire staff rededicates itself to the ideal promulgated in that first issue ". . . it will watch over the interests of firemen in all sections of the country, and endeavor to keep them informed of whatever occurs that is likely to be of interest or advantage to them."

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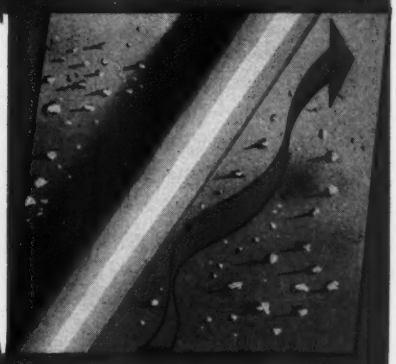
UNISPUN FIRE HOSE

ZERO TURNS



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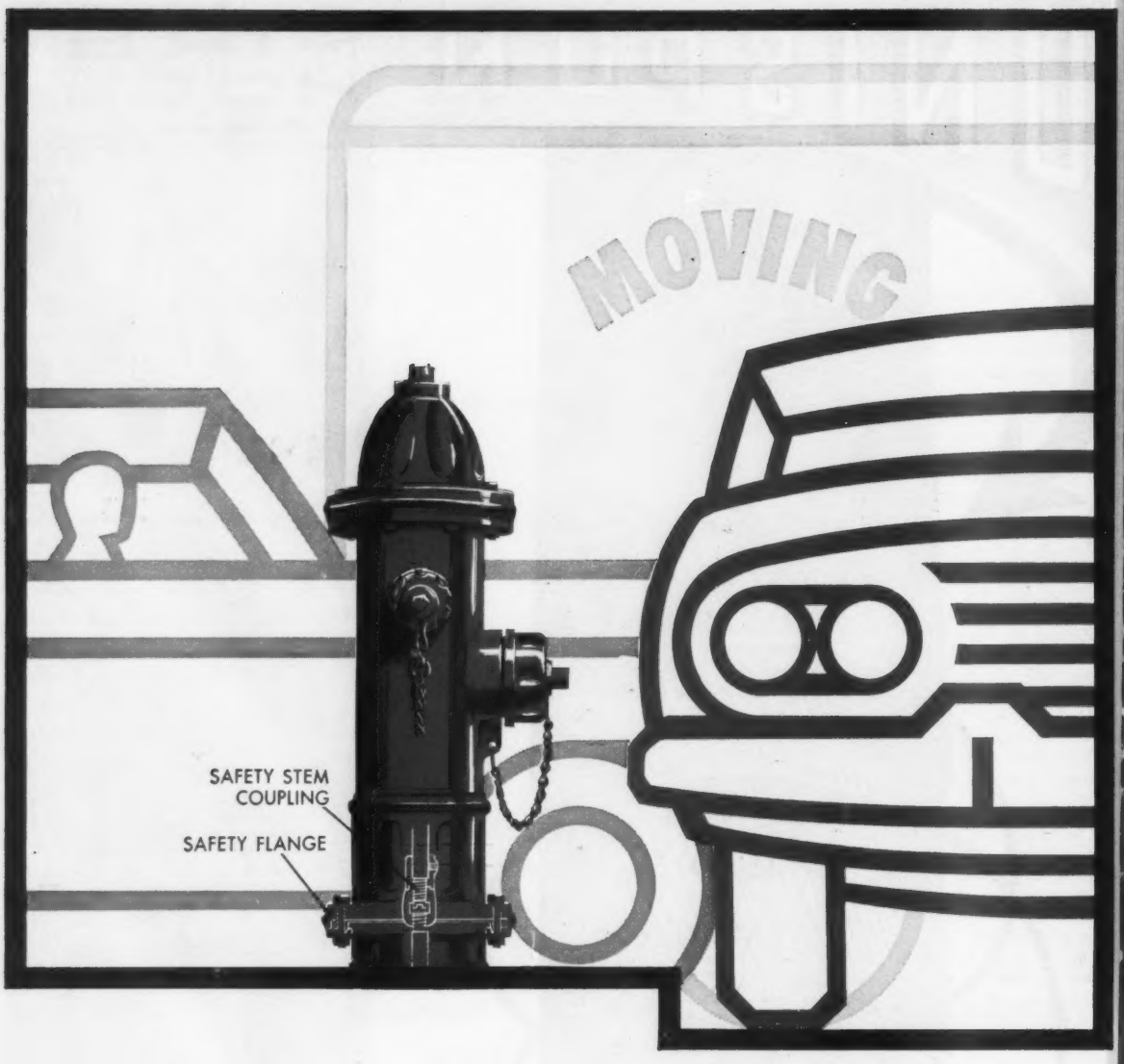
IN CANADA *Pierre Thibault* CANADA, LTD., LTEE., PIERREVILLE, QUEBEC



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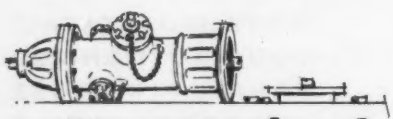
Repair traffic damage to hydrants *fast*... without loss of water... without water shut-off... without digging. Today's heavy traffic means frequent accidents involving hydrants. These accidents can mean time-consuming repairs to your hydrants and temporary loss of fire protection. To keep your fire protection system at peak efficiency and hydrant repair costs at a bare minimum, specify Mueller AWWA Improved Fire Hydrants. Vehicle impact separates this hydrant cleanly at the safety flange and safety stem coupling *with no water loss!* A simple, inexpensive repair kit restores a traffic-damaged Mueller hydrant in minutes. Write for complete details.



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Good hose pays off when the pressure's on

B.F.Goodrich hose pays back the extra pennies it costs

All the money saved in a "just as good as" hose—and much more—can go up in smoke in the extra seconds it takes to get heavy, bulky hose into action, replace a blown out section or put on more hose for longer lines. The quality features in B.F.Goodrich hose that prevent these delays add only a few cents per foot to its costs, but are worth much more to you when the pressure's on.

For example, B.F.Goodrich hose is as strong as heavier hose, but much lighter and more flexible. That's because of the "filler" cords of Dacron fiber which go around the hose and carry the load under pressure. Dacron cords are thinner, and three times stronger than cords used in ordinary hose. The hose not only lasts longer, but is easier to handle, and coils tighter—so that hundreds of extra feet can be racked on a truck.

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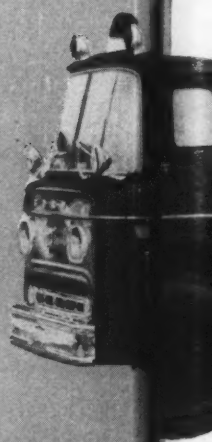
Superseal is a special treatment that practically eliminates mildew as a hose killer. This exclusive B.F.Goodrich treatment for hose gives 10 times more resistance to mildew and rotting than ordinary treatment.

If you're looking for a good buy in hose, get the B.F.Goodrich fire hose with all these quality features. It may cost more to begin with, but will actually cost you less in the long run. Your B. F. Goodrich distributor can tell you more about it. *B.F.Goodrich Industrial Products Company, Dept. M-955, Akron 18, Ohio.*

B.F.Goodrich

John BEAN BUILDS THEM BETTER

Designed, tested and built for superior performance, John Bean Firefighters have proven their dependability in community service the world over. Engineering "know how", based upon decades of experience, insures rigid quality standards in every unit. Famous Bean pumps exemplify John Bean dependability. The efficient, high pressure pump is unmatched for true, high pressure fog fire fighting. The Class A centrifugal volume pump meets every performance standard of N.B.F.U. tests. Depend on John Bean Firefighters—built better to meet your needs best.

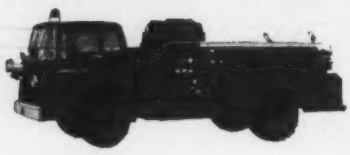


FEATURING ORIGINAL HIGH PRESSURE FOG

John Bean original high pressure fog is a scientific, proven fire fighting method distinguished from all other types. Operating at 850 psi, the rugged John Bean pump produces microscopic fog particles discharged from the patented Bean Fog Gun. Driven at high velocity to the base of the fire, these particles have many times the surface area and heat absorption power of a low pressure stream. So much so that one gallon of water as high pressure fog has the fire killing power of ten or more gallons discharged in a volume stream.

SQUAD AND RESCUE UNIT

High pressure fog fire fighter specially designed for rescue. Ample storage capacity with spacious, weatherproof compartments. 500-gal. water tank.



HPF* FIRE FIGHTER

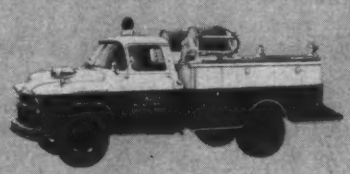
Ideal for rural fire protection where water supply is limited. Equipped with original high pressure fog*. Full, 500-gal. water tank; compartmentized body.

CLASS "A" TRIPLE COMBINATION PUMPER

Triple combination pumper with Class A centrifugal volume pump for 500, 600 and 750 gpm performance. Forward control chassis with compartmentized body.

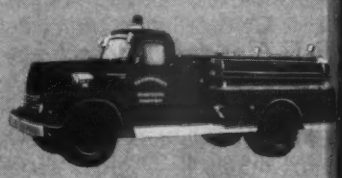
MODEL 400-F

Specially designed for small towns, resort areas, and western range patrols. High pressure fog equipped with two, 200-ft. hose reels; 400-gal. water tank.



MODEL 250-F

Compact, fast and mobile. Fights brush, grass and forest fires on the run with high pressure fog. Compartmentized body; 250-gal. water tank.



FIRE TANKER

Available with 500, 600, 750 and 100 gal. tanks. Plenty of storage space in the modern, compartmentized body.

*HPF — High Pressure Fog
HPV — High Pressure Fog-Volume (Combination)

for proof of John BEAN Firefighter effectiveness, write today fo

TO MEET YOUR NEEDS BEST!

65′ AND 75′ AERIALS

Dual hydraulic ladder control system for utmost safety. High pressure fog and volume equipped; aerial ladder available in all steel or with steel base and aluminum sections. Hydraulically operated 360° turntable and hydraulic outrigger jacks.

HPV* FIRE FIGHTER

Forward control chassis; 500, 600 and 750 gpm volume capacities plus high pressure fog; compartmentized body; 1600-ft. capacity hose bed; 500-gal. water tank.

DDEL 200-F

unted on forward control, ys "Jeep" chassis with 4- eel drive. High pressure fog; hose bed; 200-gal. water tank.

INDUSTRIAL FIRE FIGHTERS

Compact, true high pressure fog fire apparatus for in-plant protection. Designed for tight maneuvering through factory aisles; 200-gal. water tank.

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FOOD MACHINERY AND CHEMICAL CORPORATION
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Exclusive, Responsive V-6 Engines . . . Only from GMC! Get faster take-offs, higher and dependable performance with peak power at low engine speeds.

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TRUCKS

GMC V-6 and Twin-Six engines meet all the requirements to pump 500 to 1500 gallons per minute . . . 90″ and 105″ Conventionals and 72″ Tilt-Cabs.

WITHOUT ADEQUATE PROTECTION, this spectacular tank fire spread wildly and caused many thousands of dollars of refinery property damage.

Keep tank fires from getting out of control with Grinnell Water Spray

Proper safeguards are uppermost in importance in protecting tanks which contain flammable gases and liquids in the event of fire. For example, tanks must be guarded against extreme heat exposure. Leaking gas, if it should develop, must be diluted to the point where it will not burn. And fire, if it should occur, must be localized and controlled or extinguished.

With a Grinnell Water Spray System, you get such protection.

Before heat raises tank temperatures dangerously, an enveloping spray of water provides instant cooling, reducing internal pressure which helps prevent rupture. In addition, air turbulence is created (even in still air) which, in conjunction with the water vapor from the spray, helps dilute the flammable vapors to control or extinguish the fire. Flammable products which cannot be safely extinguished can be safely burned off under the protecting water spray.

FREE REFERENCE MANUAL. For a comprehensive picture of all the most advanced methods of special hazard fire protection, request your free copy of "Special Hazard Fire Protection by Grinnell." Write Grinnell Company, Providence 1, R. I. Branches in principal cities.

GRINNELL WATER SPRAY SYSTEM under test at the Mariet Ohio plant of the Bakelite Union Carbide Plastic Compan a division of the Union Carbide Corporation. Water — wh it is applied in time and distributed over the surfaces e ciently by a properly engineered system — is most effective limiting tank fires and controlling their spread.

GRINNELL

FIRE PROTECTION SYSTEMS SINCE 1870

Choose from Barton-American

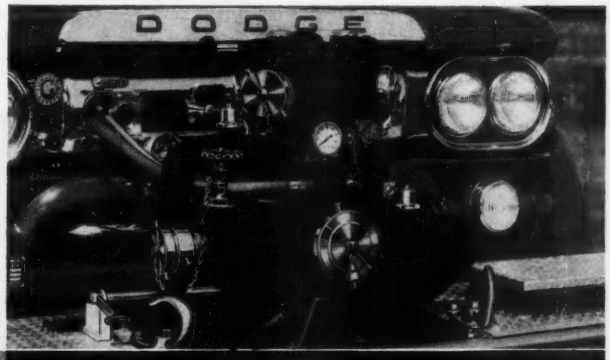
...pumps to meet all your needs...and meet them best

TYPE UA

FRONT-MOUNTED PUMPS
500-750 GPM CLASS "A" RATING

Ample pressure for fog gun operation. Fights fires "on the move".

FULL DETAILS IN BULLETIN 8330-C



TYPE DMA

TWO-STAGE MIDSHIP PUMPS
500-750 & 1000 GPM CLASS "A" RATING

High pressure for fog gun service.
2 Independent pumps. 3 Pressure & Volume selections.

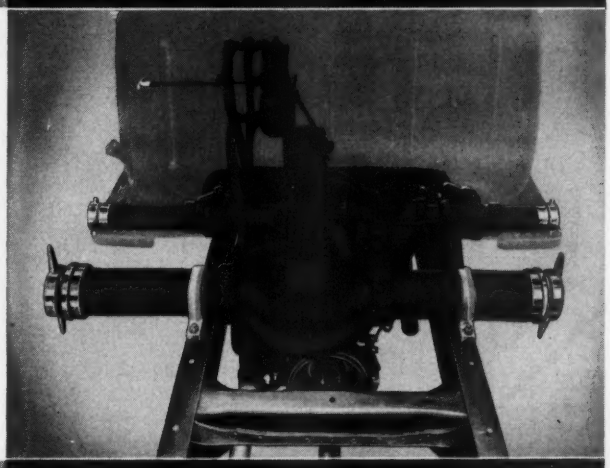
FULL DETAILS IN BULLETIN 8733

TYPE DMB

TWO, THREE & FOUR STAGE OPERATION

Pressure to 850 Lbs.

FULL DETAILS IN BULLETIN 8734

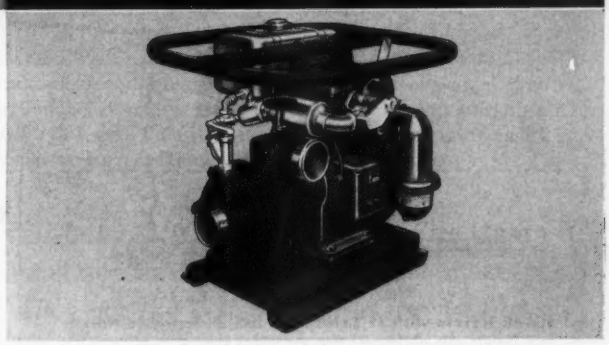


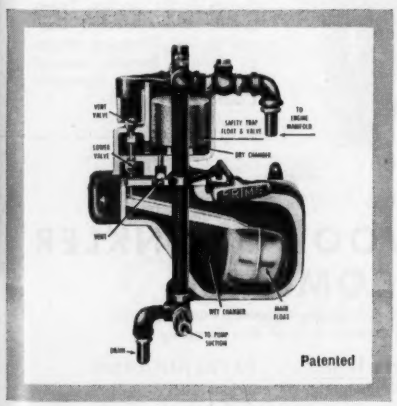
TYPE 3XD

PORTABLE PUMP
200 GPM & UP

Pressure to 90 Lbs.
Weighs only 125 Lbs.
A versatile unit for any department.

FULL DETAILS IN BULLETIN 8120





. . . and the famous Barton-American ENGINE VACUUM PRIMER

REQUIRES NO OIL, NO ADJUSTING, NO MAINTENANCE

Always operates with like-new efficiency—not affected by engine wear.
Employs a simple, trouble-proof principle.
Completely frost-proof. Always dependable.

FULL DETAILS IN BULLETIN 8733

SEE YOUR NEAREST AMERICAN FIRE PUMP DEALER

BATTLE CREEK, MICHIGAN, U. S. A.

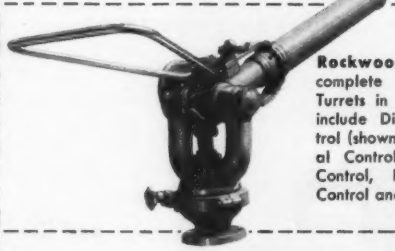
Stop Highway Fires!

The only way you can prevent highway fires from becoming major disasters in your community is to put them out as quickly as possible. Rockwood fire fighting products bring you that positive protection.

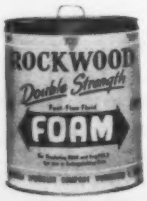
- **Using Rockwood nozzles or turrets, on fire trucks or on the ground, you can hit fires harder.**
- **Using Rockwood FOAM liquid, single or double strength, you can throw a quickly smothering blanket over fires in flammable fluids and other combustibles.**

Rockwood nozzles and turrets fight fires four ways: with solid water stream, solid FOAM stream, FogFOAM and WaterFOG. For over half a century, throughout the country, Rockwood's highly advanced fire fighting aids have been proving their ability to save lives and property. Make sure your own department has these dependable tools. For a large, illustrated booklet on this complete line, write to Rockwood Sprinkler Company, Portable Fire Protection Division, 447 Harlow Street, Worcester 5, Massachusetts.

SG-60 Nozzle with FF Extension. Like all Rockwood Nozzles and Turrets, this discharges straight water stream or WaterFOG, solid FOAM stream or FogFOAM.



Rockwood makes the most complete line of Specialty Turrets in the market. Types include Direct Manual Control (shown), Extended Manual Control, Remote Manual Control, Remote Hydraulic Control and Portable.



Rockwood Double Strength FOAM Liquid is mixed 3 parts with 97 parts water. This forms a blanket with proved ability to extinguish fires in flammable liquids with maximum speed and safety.

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A Subsidiary of E. W. Bliss Company

Engineers Water . . . to cut fire losses

Distributors in all principal cities

designers of world's smallest, fastest fire-rescue boat choose Bi-Lateral® fire hose!

Here is the most remarkable self-contained fire-fighting and rescue equipment ever placed on land *or* water! This JET PROPELLED Buehler Turbocraft is designed to travel in 7 inches of debris-filled water. It has *no* propellor, *no* rudder yet travels at 40 miles per hour and turns in its own length (19 feet). This power-packed fire-rescue craft easily supplies a 75-foot snorkel—pumps 2500 gallons a minute. It is sold by Fire & Rescue Boats, Inc., of Chicago.

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Bi-Lateral® FIRE HOSE COMPANY

20 North Wacker Drive · Chicago, Illinois

also makers of famous BI-KLEEN, the safe hose-washing compound

A MAJOR TECHNOLOGICAL BREAKTHROUGH

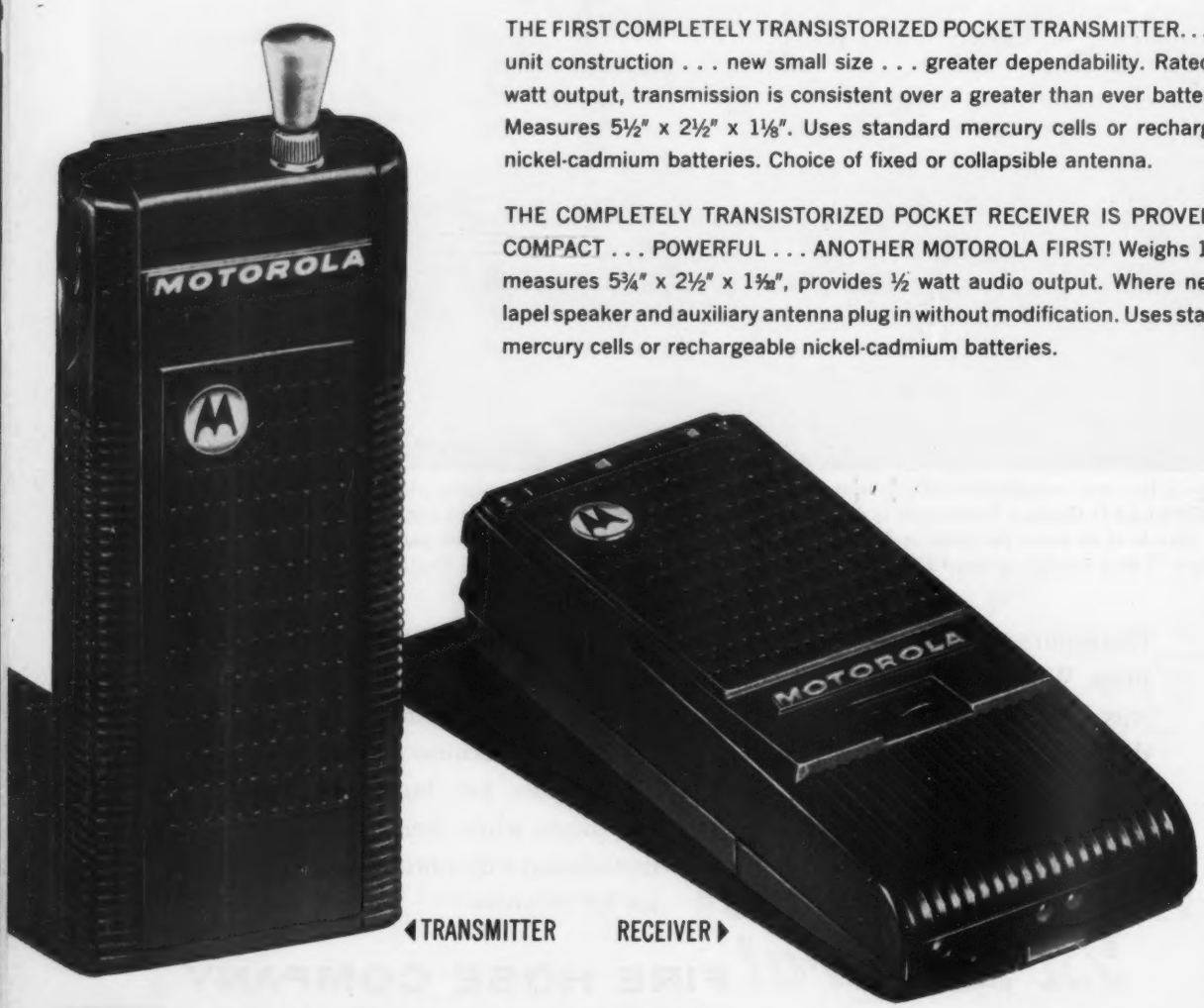
...means greater firefighting

THE FIRST COMPLETELY TRANSISTORIZED TRANSMITTER

Motorola engineering has shattered all previous concepts of pocket 2-way radio design. Now you can direct and control all elements of your department with communications equipment small enough to fit in the pocket or clip on the belt. The new completely transistorized transmitter can be held in one hand . . . just press the button and talk. Motorola's pocket receiver has been proved on the job . . . gives you the first completely transistorized pocket radio team with operating costs counted in pennies . . . greater-than-ever power and dependability. And you can communicate with existing mobile and portable 2-way radio systems to further increase firefighting efficiency. For the specific picture of personal 2-way radio in your operations . . . Call on Motorola!

THE FIRST COMPLETELY TRANSISTORIZED POCKET TRANSMITTER. . . . one unit construction . . . new small size . . . greater dependability. Rated at ½ watt output, transmission is consistent over a greater than ever battery life. Measures 5½" x 2½" x 1⅛". Uses standard mercury cells or rechargeable nickel-cadmium batteries. Choice of fixed or collapsible antenna.

THE COMPLETELY TRANSISTORIZED POCKET RECEIVER IS PROVED . . . COMPACT . . . POWERFUL . . . ANOTHER MOTOROLA FIRST! Weighs 13 oz. measures 5¾" x 2½" x 1⅜", provides ½ watt audio output. Where needed lapel speaker and auxiliary antenna plug in without modification. Uses standard mercury cells or rechargeable nickel-cadmium batteries.



◀TRANSMITTER RECEIVER▶

MOTOROLA 2-WAY POCKET RADIO

UGH pocket 2-way radio
ting teamwork and control

Here's how Motorola Pocket Communications can serve your department

Now, the man-on-the-scene can maintain full communications with (1) other pocket radios (2) portable radios (3) mobile radios.

- Direct movement of key personnel afoot.
- Increase effectiveness of "close-in" radio firefighting control.
- Maintain full contact with mobile units en-route to scene.
- Control and direct men using special purpose equipment.
- Coordinate efforts of additional manpower.

Why not learn how Motorola 2-way Pocket Radio can do-the-job for you.

SEND THIS COUPON TODAY

MOTOROLA COMMUNICATIONS & ELECTRONICS, INC.
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☐ Mail me full fact kit on 2-way pocket radio. No. FE-11
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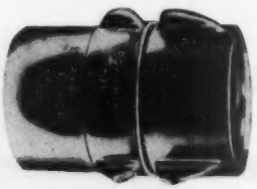

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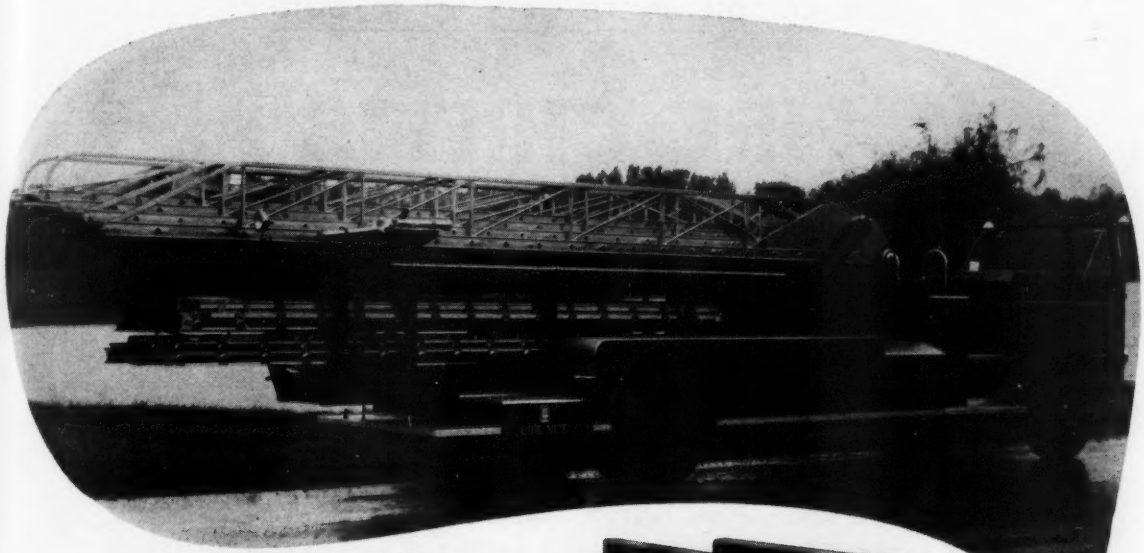
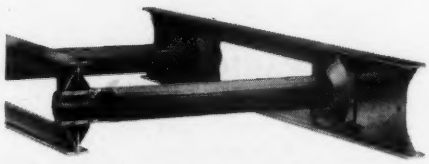
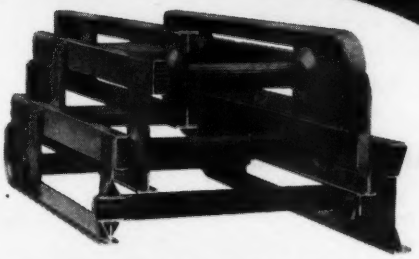


The above Aerial is a product of The Seagrave Corporation, Columbus, Ohio.





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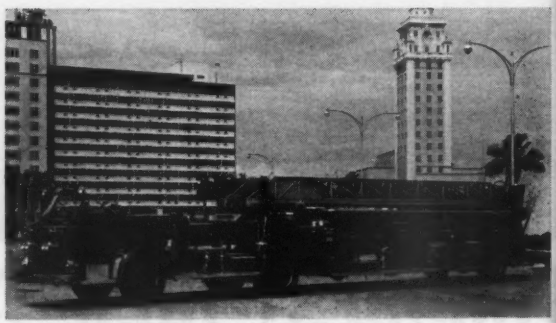

• Photo of American LaFrance aerial Truck, courtesy of Miami Fire Department

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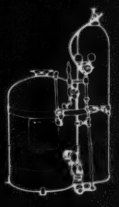

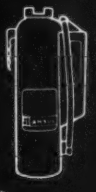

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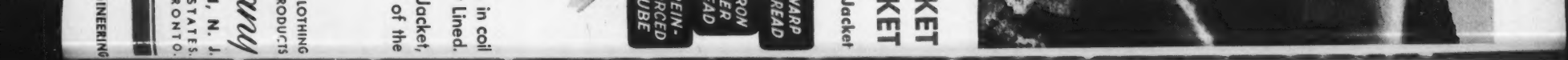
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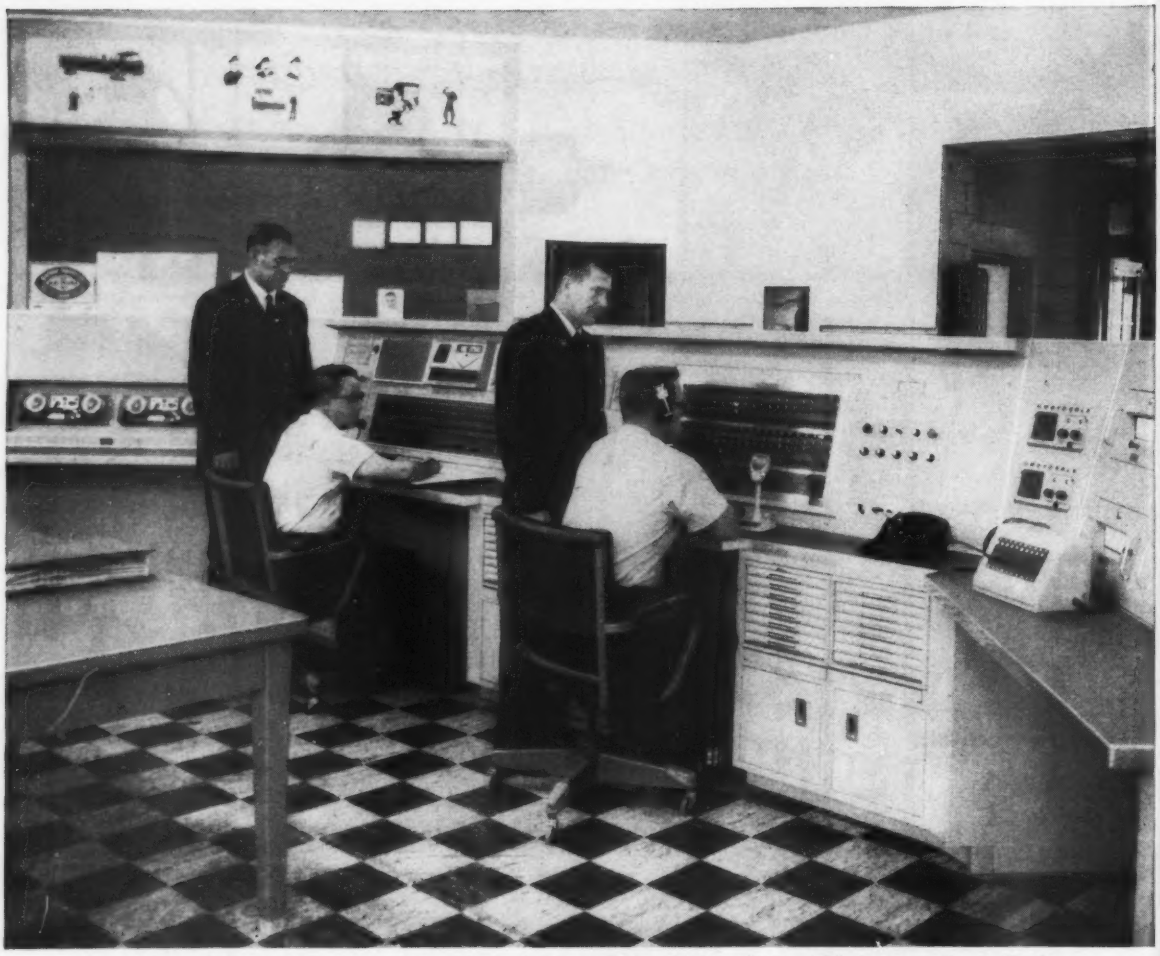

Fire Chief G. L. Sartain and Fire Alarm Superintendent B. M. Pointer of Tulsa, Oklahoma (left to right), check operations in fire alarm headquarters. City's modernized Gamewell System unerringly guides 21 engine companies, 5 ladder companies, and 4 chief cars.

How Tulsa's Fire Fighters get the edge on fires

In Tulsa, Oklahoma, a modernized Gamewell Fire Alarm System gives fire fighters a real jump on fires. It alerts precisely the number of companies needed to fight a blaze . . . and permits them to respond to the alarm without even having to check its location!

When the alarm comes into the alarm center (above) the dispatcher merely checks a card file for company assignment. Then by radio he quickly and accurately dispatches the proper assignment of men and equipment. Code signal confirmation of the alarm is then transmitted to all stations. The efficiency of the new system will greatly benefit property owners in the city of Tulsa . . . faster response to each alarm will give the fire fighters an "edge" on the fire.

The new Gamewell System was precisely tailored to the specifications of Tulsa Fire Chief G. L. Sartain and Fire Alarm Superintendent B. M. Pointer. It includes 8 alarm circuits, 24 box circuits, a new PBX system, and voice dispatching equipment. There are now 264 street type boxes as well as 65 Master Boxes located in schools, public buildings, industrial plants, hospitals, and institutions.

Rapidly expanding Tulsa had simply outgrown its former 25-year-old Gamewell Fire Alarm System and wisely took steps to keep lives and property adequately protected. Are *your* city's fire alarm facilities keeping pace with growth? A Gamewell Survey will answer this question. No obligation. Write THE GAMEWELL COMPANY, 1247 Chestnut Street, Newton Upper Falls 64, Mass.
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FIRE
ENGINEERING
VOL. 114, NO. 1 JANUARY, 1961
THE JOURNAL OF THE FIRE PROTECTION PROFESSION SINCE 1877

Teaching Machine Experiment in Fire Training

A recent announcement by the International Association of Fire Chiefs that an electronic teaching machine is now being employed in a fire training experiment has created interest among fire service officials. Most of the initial comment centers around the simple question, "What is it?" In common with most elementary questions, the answer, or series of explanations to be more precise, is not very simple. While a more detailed explanation of the application appears elsewhere in these pages, the following seems to be a summation of this startling development.

A machine for teaching purposes was introduced in a simple form late in the 19th Century and the idea has been advanced and improved in many ways up to this time. Most of the early developments were ahead of their time and until the birth of the electronic era following World War II, none was very practical. However the modern device is a combination which projects visual information on a screen and presents the instructor's voice, recorded on magnetic tape, to the student. He, in turn, absorbs the intelligence and then answers questions posed by the machine. Only a correct answer is accepted and the score may be recorded if desired. Most units, and there are several currently available, resemble modern table-model television receivers capable of black and white or color reception.

At present, the fire service experiments in the use of the device are limited to material lending itself to true or false-type questions and answers. Modifications of the machine being used in the fire training program permit written answers or oral statements to be accepted depending on the educational method desired for the purpose at hand. At first glance, the idea appears excellent, but educational experts warn that until complete evaluation is made, caution should be exercised.

One of the nation's foremost adult educators, long experienced in technical and scientific fields, is directing this pioneer fire service project and closely evaluating the effectiveness of the medium. He believes that teaching machines, coupled with good lesson plans which present the material with clarity and simplicity, will make learning much easier for the students. The preparation of the curriculum in the form of sound lesson plans is, in his opinion, the key to success or failure of this new method of instruction. The nature of the broad technical knowledge required by fire fighters is believed to lend itself ideally to the type of instruction which is readily imparted by the machine. The receptiveness of firemen and fire officials is an unknown quantity which will receive careful scrutiny during the experiments to determine if fire fighters can profit by such programs.

Educational experiments to test the machine curriculum have been carried out recently in other fields. One research project of this nature was under the direction of a team of educators working at the University of California at Los Angeles in cooperation with the Santa Monica Schools System. Two groups of first-grade children were selected and given elementary training in molecular theory. The test group was taught by machine while the control group received instruction from a teacher in the normal manner. When the instruction was completed, both groups were interrogated and the educators report that the machine-taught pupils were significantly superior in their knowledge of the subject.

Experts in the design and construction of the machines, as well as educators skilled in curriculum development believe that by 1965 the practical field for this new method of instruction will open up. By that time, scientific and technological advancements will have benefited from the experience gained in experiments now under way or scheduled to begin shortly. Full advantage can then be taken of the knowledge of strong points and shortcomings of the method.

Certainly the fire service will have benefited tremendously during this period with a promise of even greater things to come. Cooperating in a research project of this nature could well lead to a revolution in present fire training methods if success is achieved. In any event, the concentration on proving methods presently employed against a radical development will, in the long run, result in more soundly trained firemen to better serve the public. This can be considered an ideal situation for regardless of the results, only good can be derived.

Hlow O'Brien

It is often necessary to open up a wall to discover hidden fire. Other firemen should stay at a safe distance from the man wielding the tool in order to prevent injury
—*West Milwaukee F. D. photo*

Hidden fire is frequently found in door and window casings. For safety's sake the molding should be pried at the bottom first, rather than the top because if pulled out from the top it might strike firemen in the face—*West Milwaukee F. D. photo*

Fundamental steps in

By WILLIAM E. CLARK*
Supervisor, Fire Service Training

OVERHAULING simply defined, is a thorough examination to make certain that a fire is completely extinguished. In the usual application, it is the entire process of making sure that no sparks or embers remain to rekindle a fire which might again spread through the premises or materials involved. Overhauling should not be considered part of salvage work or determination of fire cause. Overhauling is an important subject, one that should be dealt with separately. It should also be clearly understood that overhauling is not merely wetting down burned materials; it is performed more with tools than with water.

It can be justifiably said that large

**Reprinted from the Wisconsin Fire Service Training Bulletin, Volume 2, No. 1 published by the State Board of Vocational and Adult Education, C. L. Greiber, director.*

A pike pole with a 6-foot handle is the handiest when working in residential structures. Handles longer than this make work awkward and difficult. Note that man keeps his head down when pulling to avoid being struck in face by plaster or pieces of lath—West Milwaukee F. D. photo

Fire may be burrowed deeply in upholstered furniture making it necessary to pull the padding apart to guarantee complete extinguishment
—West Milwaukee F. D. photo

the technique of overhauling

fire departments usually overhaul excessively and that small rural departments do not overhaul sufficiently. The reason that overhauling operations are so extensive at fires in larger cities is that it is considered a serious offense in many large departments, as well as a reflection on the ability of the officer in charge, if a fire rekindles after the department has left. This policy sometimes creates excessive overhauling and unnecessary damage.

On the other hand, many fire departments in rural areas do very little probing for hidden fire after the visible fire has been extinguished. Their luck is surprisingly good, but many rekindled fires occur. Often the damage from the second fire is far greater than the first.

There is a proper medium between the two extremes. Good overhauling, based on knowledge and performed with confidence, will hold damage to a minimum and still give reasonable assurance that the fire is completely extinguished.

Necessity for overhauling

Overhauling is necessary because fire tends to remain unnoticed in concealed spaces of a building, behind walls, above ceilings and under floors, and in cracks between boards, etc. Also, combustible contents such as upholstered furniture, mattresses, rugs, clothing, rubbish and stocks such as paper and cloth may contain hidden fire.

As soon as visible fire is extinguished, overhauling operations should begin. Usually there is no need to start with haste; a little time spent planning for a systematic overhauling job will save time and effort, prevent injuries, avoid needless duplication and get better results.

Operations should be planned so that an examination is made of every place where fire could possibly remain or have extended. This can range from the opening of a mattress to the shifting of all the contents of a warehouse; from punching a small hole next to a light fixture to pulling down the entire ceiling of a large building.

The plan for overhauling operations should be based on location, intensity and extent of the fire, type of construction involved, and type, amount and distribution of contents. The first step is to use hearing, sight, touch and smell to discover hidden fire. Fire in a ceiling or wall may be indicated by a crackling sound, or by blisters or discoloration. Fresh smoke issuing from cracks in floors, or around baseboards is another sign of remaining fire. Sometimes the smell of smoke will indicate what material is burning and give a clue to its location. Touch may be used by feeling for hot spots along walls and floors.

Whenever these signs of hidden fire

Necessity of thorough overhauling is evident in this illustration. Note extent of char on ceiling beams while no evidence of fire travel is visible inside room

appear, it is logical to make openings to uncover and extinguish the fire. It should be remembered, however, that a wall that has had its surface exposed to the heat of the fire may feel hot and yet not have fire behind it. An old adage says that if you can hold your bare hand on a lath and plaster wall long enough to say, "It's hot, Chief," then there is no fire at that point.

Judgment needed

Of course, one cannot depend entirely on these noticeable signs. There are frequent occasions when judgment is the only guide. If there has been intense fire in a room, it may be reasonably assumed that it might have been conducted through the ceiling; therefore a small portion of the ceiling may be opened for examination. The point chosen for this examination should be the place where the fire appeared to be most intense or where there is an opening such as a light fixture or pipe channel. If, after the ceiling is opened, evidence of charring is disclosed, more of the ceiling should be removed until all of the charred area has been exposed. If cobwebs are seen, it means that there has been little or no heat there.

Window and door frames are places that require particular attention. Hidden fire is probably found here more often than in any other part of the building. It is a simple matter to remove the casing or trim, preferably the trim, because it can be taken off neatly without damage and left for the owner to replace.

When an examination is made to discover fire travel in a wall of a room above the fire, the least damaging way to open that wall is to remove the baseboard and puncture the plaster in the area previously covered by the baseboard. When the baseboard is later replaced, it will cover the hole.

Sometimes it is necessary to remove floor boards to get at or discover fire. The most efficient way of doing this from the standpoint of ease of operation and cost of replacement is to cut the boards alongside the beams they rest upon. The location of these beams may be determined by sounding—that is, tapping the floor with the top of the axe head. The hollow area between beams will emit a deeper sound.

Exterior overhauling

It has been assumed that all of the structural overhauling mentioned so far will be done from the interior of the building. It is not only easier and more effective to open sidewalls from the inside but less damaging in terms of repair cost. Exterior overhauling operations may include opening of roof, opening roof and window cornices, and removing burned shingles or siding. The same procedure described for floor boards is used to remove roof boards after roofing material has been taken off to expose the boards. Tin or built-up roof coverings are cut and peeled back. Shingles can be pried loose with a claw or similar tool or the pike of an axe. A quick and easy way to remove shingles is with a shovel. A good way to cut up roof coverings around a skylight or other opening is to cut diagonally outward from each corner, then peeling back the roofing material between the cuts.

The overhauling of furniture mostly concerns mattresses and upholstered furniture. Fire can burrow deep into stuffing material and smoulder for days. This requires that the material be pulled apart and thoroughly examined. A safe procedure is to remove a mattress to a place where its reignition would do no harm. The fact that a mattress or davenport is well soaked with water is no guarantee that all fire in it has been extinguished. An experiment was once conducted in New York of lowering a burning bale of cotton into the East River and leaving it submerged for a week. When it was removed, the bale was broken open and fire was still smouldering within it. The use of water containing a penetrant (wet water) is helpful, but does not entirely remove the necessity for pulling apart burned materials.

Burned clothing should be separated from unburned and examined thoroughly. A common way to overhaul clothing or bed clothes that are still burning is to remove them to the bathroom and submerge them in a bathtub half full of water. Just as with clothing, the overhauling of combustible stock in a mercantile or storage occupancy calls for separation of the burned from the unburned, and close scrutiny of the burned. If fire damage has rendered an article useless, many fire departments feel that no further damage can be done by soaking it. This may be done by forming a basin with salvage covers, putting water from a hose line into the basin and dipping burned materials into this water.

Two common overhauling procedures that are actually seldom necessary are scraping char and the practice known as "washing down." The scraping of char from wood surfaces for fear that the charred area will reignite spontaneously is hardly worthwhile because the likelihood is so remote. The procedure known as washing down is frequently overdone. It seems incongruous that firemen will endure extreme punishment in getting close to a fire to extinguish it with a minimum of water; then an hour or more later use three times as much water to wash down an area that has been overhauled. If the overhauling has been competently done, and the examination has been thorough, there

is little justification for the traditional wash-down. About the only time it may be justified is when it is believed that fire may remain in some crevices that are difficult to uncover or examine. A small amount of water may be directed into such spaces. But, the wetting of exposed surfaces is a useless and sometimes damaging procedure, usually caused by overcaution.

Specific problems

There are some specific occupancy problems that arise frequently. One is the overhauling of an automobile. The first step is to disconnect the battery, unless it has been determined that it had nothing to do with the fire. Burned seat cushions should be removed from the vehicle and thoroughly overhauled. If there is a possibility that fire might have extended into the contents of the trunk, it should be opened for examination. Burned wires should be scraped or closely examined. Floor mats should be inspected on the bottom; an examination should be made of the underside of the vehicle to see if any grease or insulation is burning.

Fires in lumber yards or other places where stocks of wood are involved will necessitate the moving of the burned lumber—a tedious, but often necessary, procedure. The same is true of coal piles, hay storage, and piles of rubbish or similar materials. Burned hay presents a safety problem also. Men should stand on planks or ladders to keep from falling into pockets where the hay has burned to ash.

Fires involving large amounts of baled goods often necessitate the movement of bales to the outside of the building to be overhauled. Fork lift trucks or hand trucks are often on the premises and can be utilized if still serviceable. If the goods to be moved are on upper floors, sometimes a window opening can be continued down to floor level to facilitate removal of burned material. If this is done on more than one floor, the openings should not be made on windows directly above or below each other. The removal of window aprons in direct line may weaken the wall.

It has been said that more firemen are injured during overhauling work than in any other phase of fire fighting operations. Great consideration must be given to safety. A safety item of prime consideration is structural stability of the building. If the fire has been severe enough to possibly weaken the building, a preliminary examination should be made for signs of weakness before overhauling is allowed to begin. Where floors are heavily loaded, a space between the end floor boards and the sidewall is a danger signal that the joists are pulling out of the wall.

If there is much water on the floor, it should be relieved promptly because water is quite heavy. Water an inch deep covering an area 40 x 80 feet will add about 16,000 pounds to the gross floor load. If water has accumulated on more than one floor, it should be removed from the lowest floor first and then each floor above in turn, working from the bottom upward. This will prevent water from upper floors adding to the load on lower floors.

Common overhauling accidents are:

1. Falls, caused by men stepping into holes in floors, slipping on wet or icy floors, and tripping over debris.

2. Cuts caused by broken glass and metal, especially tin ceilings.

3. Foreign bodies (charcoal, plaster, etc.) in eyes.

4. Strains caused by lifting heavy objects.

5. Injuries caused by falling objects.

6. Men being struck by tools wielded by others.

Items 3, 5 and 6 above are most frequently caused by men working too close together. This can be easily prevented by proper supervision. It should be strongly emphasized that the duty of officers is to supervise—not to join in the work. An officer cannot properly look out for the safety of his men if he is occupied with manual work.

Another safety consideration is the presence of dangerous materials, such as acids or other chemicals that may be hazardous alone or in combination. Special care is needed in handling them and it should be remembered that containers may have been weakened by heat or water and might fall apart during handling. Caution is required too in the presence of combustible dusts. There have been occasions when firemen have disturbed dust sufficiently to cause dust explosions during overhauling.

A large overhauling job should be well planned. After the stability of the structure has been ascertained and danger spots noted, the procedure should be laid out so that all points will receive the necessary attention. In this way, no part of the structure will be overlooked and needless duplications are avoided. Starting and finishing points should be selected, work apportioned and assigned, and suitable tools brought to a convenient point. Adequate lighting is important for safety and efficiency.

Overhauling tools

Tools required may vary slightly with the job to be done, but the usual basic group consisting of an axe, a 6-foot pike pole and a Halligan or claw-tool are satisfactory for most of the work. Scoop shovels are needed where debris must be moved. Pitchforks are handy overhauling tools on certain occasions. The use of power tools, especially saws, has become popular in recent years. A common fault of small departments is not having short pike poles or hooks. Those with handles longer than 6 feet are difficult to use inside most buildings, especially dwellings.

Other equipment should include lights, and a generator, if necessary. Also, it should be remembered that a charged hose line or lines with sufficient hose to reach all points should be on hand ready for any fire discovered. The usual practice is to reduce to lines of 1½-inch diameter and nozzles of small capacity for easier mobility and less water damage. Pump and engine wear may be saved when hydrant pressure is adequate to supply these lines, but a pumper should be ready for instant use if needed.

Mention should also be made here of "watch-lines." In extreme cases, a chief may decide that the most efficient procedure is to leave a small crew of men with a charged hose line on the scene to guard against rekindle, allowing companies to return to quarters. This is not done until routine overhauling has been completed.

The public relations aspect of overhauling is important. Unfortunately, the public seems to have an image of firemen as housewreckers. It is worthwhile to explain the need for overhauling to the owner or occupant of the premises and consideration should be given to his feelings. A neat overhauling job with debris removed and a little time spent cleaning up will make a far more favorable impression than a careless job. This is especially true in a residence. A good mental attitude for firemen is to base their activities on this principle: "Suppose that I were the property owner and not a fireman. What impression of the fire department would I get? □□

Editors note: Photos credited West Milwaukee Fire Department were supplied through the courtesy of Chief John Pavlik, with the cooperation of the Greenfield and Oak Creek, Wis., Fire Departments.

Dr. Leonard C. Silvern briefs Los Angeles County Fire Chief Keith E. Klinger on operation of experimental teaching machine which will be used in fire training program to teach forestry fire suppression practices —*Hughes Aircraft Co. photos*

Raymond B. Parkhurst, vice president of manufacturing, Hughes Aircraft Company (center), operates controls of experimental teaching machine for Battalion Chief Noel M. Manchester, LACFD (left) and County Fire Chief Keith E. Klinger

Fire training by machine—a Los Angeles County experiment

LOS ANGELES COUNTY firemen are pioneering in the use of a teaching machine. The type being used is a relatively simple electro-optical device which presents information and questions to the fireman.

First, a slide flashes a picture and printed material on the screen. The fireman examines this information and, at the same time, hears instructions over his earphones. Then a question or problem is presented. The fireman solves the question and pressses one of several buttons in order to place his solution into the teaching machine. If his response is correct, the instructor's voice is heard to say, "Right," and the answer is then explained in greater detail and a green bulb lights. If the response is incorrect, a yellow bulb lights.

Each time the fireman presses a button signifying a solution, his answer is recorded on an IBM-type punch card so a record of all correct and incorrect responses may be kept, if desirable. The slides change and the tape advances and stops automatically, based upon the learner's actions. Modifications of this machine include placing written answers or oral statements into it rather than selecting the correct answer and pressing the right button.

Two important principles underlie the effectiveness of the teaching machine. One is that the material be presented with absolute clarity and simplicity—information distilled to its essence. The other is that the machine offers what is termed "immediate reinforcement and knowledge of results."

In classrooms of a generation ago, reinforcement was a good grade, a teacher's smile. With the machine, reinforcement is the simple pleasure of being right. And, with the machines, this feedback from machine to learner is immediate. Thus, the learner absorbs information and applies it instantly in answering other questions, thereby speeding the learning process.

Dr. Leonard C. Silvern, who helped to develop the course being offered to

Captain John Whelan, learning from teaching machine which is being employed in pioneer fire training program now being carried on in Los Angeles County Fire Department

—*L. A. County F. D. photo*

the Los Angeles County firemen, is education and training research director for Videosonic Systems of Hughes Aircraft Company, and a member of the board of trustees, International Fire Administration Institute. He says the teaching machine as a device is not new.

"A study of records reveals that a mechanism which could be described as a teaching machine was patented over 93 years ago, but was ahead of its time," he observes.

However, designing a machine is a far cry from developing a workable and useful curriculum, which may be equal to or better than the learning resulting from instruction provided by a human being. It is, therefore, the effectiveness of the curriculum which is

Experimental teaching machine resembles portable television receiver. Panel in front mounts control buttons while box at side is punch card recorder for tabulating results—Hughes Aircraft Co. photo

being studied by Dr. Silvern, as well as the receptiveness of the firemen and their officers to the new machine technique.

The LA County Fire Department machine course is entitled "Forestry Camp Watershed Fire Training" and is in the Department of Forestry and Fire Suppression.

Of the many units of instruction comprising this course, one of several given to firemen, a lesson in particular —fire behavior—seemed very suitable as the first to be adapted to the teaching machine. The lesson plan which, in final form, consists of color slides and magnetic tapes includes the following main facts and teaching points presented sequentially:

Fire in the life of early man, principles of combustion in 1783; elementary chemistry of fire; why fire burns; fire triangle, principles of combustion, fire as a chemical reaction, ignition temperature (direct application of flame, friction, electricity, spontaneous heating and ignition), heat transfer (radiation, convection, conduction), temperature without heat; breaking the fire triangle, cooling, removal of air (water, dirt), inert gases, foam, dry chemicals, dirt, breaking the fuel side of the fire triangle; factors influencing the spread of fire, weather, wind, prevailing winds, Santa Ana Winds—Santanas, fire winds, dust whirl, fire whirlwind, fire storm; temperature, preheating of fuel, fatigue factor, evaporative process, relative humidity; fuel moisture, canyons, elevation; fuel, ground fuels, aerial fuels; continuity of fuels, patchy fuel, uniform fuel; compactness of fuels, finely divided fuel; fuel volume, heat production, fire duration, radiation.

In this lesson, the fireman will be instructed automatically by visual and aural presentations, and questions raised will be answered when he presses a button corresponding to the most correct answer. This is the "multiple-choice" mode using recognition based upon Dr. S. L. Pressey's original work at Ohio State beginning in 1926.

No textbooks, workbooks or any printed materials will be permitted although notes may be taken if the trainee desires. For this lesson, no human instruction is to be given, no questions may be answered by the instructor who is merely observing. At first, one teaching machine will be used and 19 trainees will be scheduled for individual instruction since the machine instructs only one trainee at a time. Later, depending upon the progress of early experiments, additional machines may be provided by Hughes Aircraft Company. A control group of 19 trainees will receive the same instruction from the training officer. Results of both groups will be compared as the study progresses.

Later experiments will involve problem solving and instruction of elementary skills in the "Forestry Camp Watershed Fire Training" course. In these, the "written-completion" mode of response pioneered by Dr. B. F. Skinner of Harvard and the "oral-completion" mode presently being developed at the University of California-Los Angeles (UCLA) by Dr. E. R. Keislar and Dr. J. D. McNeil will be tried. These are recall from memory techniques. The UCLA research was initiated in early 1959 under a Hughes research grant. Current research there is being supported jointly by Hughes and the United States Office of Education. □□

District of Columbia Plans New Repair Shops

The Washington, D. C., Fire Department is proceeding with the construction of new repair shops, including a new home for Engine Company No. 7, at L & M, Half and First Streets, SW. The new facility will contain the latest in garage equipment according to information supplied FIRE ENGINEERING by M. H. Clarke, Properties and Purchasing Section, DCFD.

Each mechanic will have his own work bench area. Other work areas include a blacksmith shop, battery shop, machinist shop, body shop, paint spray room, a room for miscellaneous work, a hose testing area, a modern lubrication lift, wash rack, and a storeroom with a mezzanine floor for light materials. A modern office area is included in the plan.

Other features include a modern locker room, kitchen, lounge, bath, and shower facilities on the second-floor level. A water system for testing pumpers is provided in the yard. The shop will have apparatus doors on three sides with the main entrances on Half Street.

"This new shop will have facilities to put in service a long-needed preventive maintenance program for vehicles," says Clarke. "All apparatus will be brought periodically to the shop for checkover, motor tuneup and, if necessary, paint touchup.

Engine Company No. 7, presently quartered in old Engine Company No. 18's quarters at 9th and K Streets, SE, will be relocated at the Half and L Street corner of the shop. The two-story fire station will be modern in architecture in keeping with the rest of the area.

—Paul C. Ditzel

New Rules Promulgated For N.Y.C. Firemen

A revised manual of regulations governing members of the New York Fire Department became effective September 1. The streamlined volume contains 32 chapters and 146 pages. It replaces a similar manual in force since 1952.

On promulgation of the new manual, Fire Commissioner Edward F. Cavanagh, Jr., said: "With economy of language and easy readability, the manual outlines the duties and the responsibilities of all members of the fire forces, from the chief of department down to the newest recruit."

The book was prepared over the last several months by Battalion Chief George C. Hennessy, 7th Battalion, and Lieutenant John Maloney, Engine Co. 3, under the supervision of Arthur J. Massett, chief, in charge, bureau of personnel and administration.

"It is our plan," the commissioner announced, "to supplement the new book with three subsidiary manuals, covering communications, training and requisitional routine. These manuals, now in preparation, will round out a comprehensive volume, governing operational and procedural policy of the fire department."

Although the fire had consumed the materials used to start this blaze, enough evidence remained to indicate arson to the National Board's experienced special agent who was asked to assist in the investigation—photos courtesy National Board of Fire Underwriters

ARSON TODAY—YESTERDAY

By JOHN E. STUERWALD*

Special Agent, National Board of Fire Underwriters

ARSON CONVICTIONS were a rarity in the United States prior to 1919, because of inadequacies of law. No two states had the same arson law. Many had adopted the common law version, i.e., "The malicious and willful burning of the house or outhouse of another man" or "the malicious and voluntary burning of the house of another by day or night." As we know it, arson at common law was considered an offense against the habitation rather than against the building as property.

Pennsylvania at the time had an arson law which provided a maximum penalty of 12 years. A man could set his own property on fire and still not be accused of arson.

In Ohio, the arson law consisted of two sections: The first defined arson as the burning of the property of another; the second defined arson as the crime of burning one's own property to defraud an insurer.

In those earlier days arson statutes, in general, were "lifeless words." If the country was ever to successfully defend itself against the incendiarist, who was having a field day, it was evident that arson statutes had to be broadened. Around 1920 the Fire Marshals' Association of North America appointed a committee to draft what might be termed a "Model Arson Law" which could be introduced and passed in the various states as uniform law. The Arson Department and Committee on Arson and Incendiarism of the National Board of Fire Underwriters and the National Fire Protection Association assisted and cooperated closely in this effort and, in 1927, the "model concept" was introduced in about 21 states that had sessions of their legislature convening that year. This started the ball rolling and ultimately 43 states either adopted the entire provisions of the Model Arson Law or its salient provisions which provide in general:

1. That arson may be committed by burning one's own building as well as that of another

2. That accessories before the fact in arson may be prosecuted as principals

3. A definition of what shall constitute an attempt at arson

4. A reasonable minimum and maximum scale of punishment upon conviction

After a great deal of concerted effort, the arson laws of most states were modernized, promoting the efficiency of those engaged in enforcing the law. In addition, the rights of the people were better protected by eliminating the various technicalities and loopholes found so useful by attorneys defending arsonists and by clearing up the troublesome antiquated language and concept of the common law. The few states which have not adopted the Model Arson Law—Maine, New York, Oklahoma, Tennessee, Texas and Washington—have what may be termed adequate arson laws, while the arson laws of the District of Columbia incorporate the essential features of the Model Arson Law.

Wisconsin, which originally adopted the Model Arson Law, has redrafted its arson laws within the past several years to embody, among other changes, some of the features of the Louisiana Arson Law with reference to "simple arson" wherein the property value has a bearing on the punishment.

For many years, the enforcement of arson laws was left almost entirely to the state fire marshals in those states where such an office existed, or to untrained and frequently disinterested law enforcement personnel at other echelons of government. It is not in-

*Condensed from an address delivered recently at the University of Michigan.

A crude arson "setup" that failed. A cardboard box contains newspapers, kindling and a candle intended to burn down and set them ablaze

tended here to criticize those units whose efforts in the main were gallant, but ofttimes futile. Unfortunately there was very little collective interest, cooperation or planned education in the field of arson investigation and enforcement.

Around 1914 the National Board of Fire Underwriters' Committee on Arson and Incendiarism entered the picture more actively than before. In place of offering rewards for the arrest and conviction of arsonists, it was decided to employ special agents to assist and cooperate with the public authorities in the investigation and criminal prosecution of incendiarists. Eventually, the International Association of Arson Investigators was founded. The primary purpose of this group is to collectively war on the arsonist, to put him out of business, and to increase its members' knowledge of arson investigation.

First arson seminar

The first arson seminar was conducted at Purdue University in 1947. Similar seminars have been conducted at Purdue each year since then, attended by hundreds of persons interested in arson investigation.

The quest for education in this area has grown to the point where annually several arson seminars are held at colleges and universities throughout the country. Several books, many pamphlets and numerous newsletters containing up-to-date technical and legal information on arson detection and investigation have been written by association members and others, and published in professional periodicals or booklets through the IAAI. These are available to those interested at a minimum charge or at no cost.

Through the efforts of the IAAI the Federal Criminal Statutes were eventually amended a few years ago to incorporate a provision for the unlawful flight to avoid prosecution for arson and giving the Federal Bureau of Investigation jurisdiction. In many cities today, the investigation of suspicious fires is carried on by trained arson personnel who are members of the detective bureaus, the fire departments or a combination of both. They are today dealing more effectively with the arson problem.

Professional firmen employed part-time as trained instructors by the Division of Fire Safety of New York State give a nine-hour arson detection course to all volunteer fire services in the state. For fire departments elsewhere, interested in similar instructions, the NFPA pamphlet, "Firemen's Responsibility in Arson Detection," is highly recommended.

It would appear that all fire departments can and should devote much more emphasis and time to this subject than they currently do. Undoubtedly, an intensified program in arson detection will result in more fires being referred for investigation, with untold direct and indirect benefits in cutting down incendiary fires and those currently labeled, "Cause Unknown." An important by-product of arson investigation is the fear of detection which, undoubtedly, has been a great deterrent to the crime—and possible fire losses—with untold savings in life and property.

Public safety agencies interested in arson detection and investigation can and should strive for a working relationship with penal and mental institutions so that information on arson parolees and escapees gets down to the operational level. Of course, there may be laws in some areas prohibiting this information being disseminated. However, several large cities in the East, and there are possibly more, enacted local legislation making it compulsory for felons to register with the police department upon release.

A report submitted in 1912 by the New York City fire commissioner to the mayor, William J. Gaynor, shows the arson picture as it appeared early in the century.

Twenty-five to 30 per cent of the annual fire losses in New York City were incendiary in origin, causing untold deaths and a total of $4,000,000 damage to property. In what was termed a "hazardous firebug zone," a 60-block area between 96th and 106th Street and Madison Avenue and the East River, innumerable incendiary fires occurred each year with 85 touch-offs in just one square block in two and one-half years.

Firesetting lucrative business

Fire-making was termed a murderous, lucrative business pursued by certain persons, many of whom were not necessarily part of the "criminal element." Within these groups and certain trades, mainly textile and leather, fire-making had become a fine art, carefully planned, and so ably executed that complete destruction usually followed. Needless to say, detection, apprehension, prosecution and conviction under these circumstances were extremely difficult. The city averaged 91 arrests and 29 convictions annually over a five-year period ending in 1911—a small number compared to the number of fires.

The report emphasized that arson has been with us since the existence of insurance. Oddly enough, no other motive for firesetting was mentioned. The insurance business was severely criticized for its apparent indifference in permitting free and easy coverages on risks without adequate and proper inspection. To prove his point, the commissioner used his own deputies who, without any difficulty at all, obtained $127,000 coverage on such items as a knife, fork, spoon, cuspidor, and several others, valued at $3.96. Eighteen different insurance companies were on the line and wrote a total of 135 policies. This and other similar incidents led to a Joint State Legislative Committee instructing the insurance business to tighten up or else.

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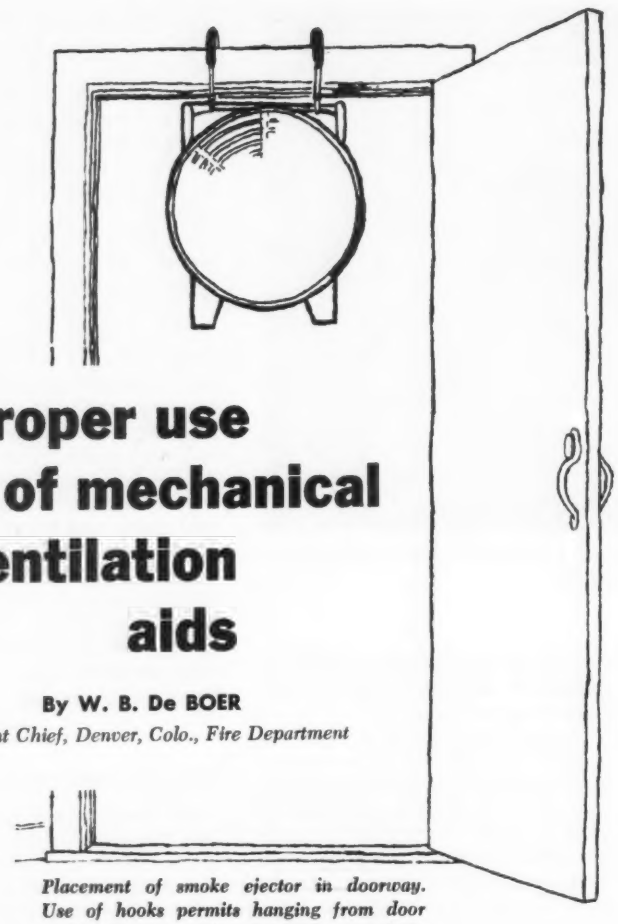


Proper use of mechanical ventilation aids

By W. B. De BOER

Assistant Chief, Denver, Colo., Fire Department

Placement of smoke ejector in doorway. Use of hooks permits hanging from door casing. Be sure casing is strong enough to support unit

FIREMEN know that the removal of smoke, hot air and dangerous gases from a building will enable them to locate quickly the seat of a fire and advance hose lines to attack the flames. They also know that ventilation will help save lives, prevent so-called back drafts, reduce water and smoke damage and prevent unnecessary fire spread by directing the products of combustion through a desired channel to the outside atmosphere.

Ventilation in fire fighting terms usually refers to natural vertical ventilation. No one should overlook its advantages, especially in large fires or in situations where drawing the smoke *up* will accomplish the intended purpose. Horizontal or lateral ventilation is frequently employed for fire fighting purposes where it is necessary to clear the atmosphere of a single floor or a room and it is desired that little of the smoke travel upward.

One problem associated with natural horizontal ventilation is its relative slowness in clearing the atmosphere when compared with vertical ventilation. By employing some mechanical means of assistance the process can be speeded and the smoke can be channeled as required by the conditions.

To properly perform mechanically assisted horizontal ventilation, firemen should first know the basic principles of natural ventilation as much of that knowledge will be necessary to do a more efficient job. In natural ventilation the fireman is dependent on the forces of nature, but in mechanical ventilation the fireman creates the desired circulation by his knowledge, equipment, and actions. Both types of ventilation have many advantages, but if improperly performed or without regard for existing conditions, both can have adverse results. Successful mechanical horizontal ventilation is largely dependent on seven rules, as follows:

1. Place an exhausting smoke ejector in an outside opening nearest to the source of the smoke.

This should be the first smoke ejector placed unless some other action is dictated by the emergency. The initial problem is to get the smoke out and the shortest path is usually the best. Many times smoke ejectors can be positioned to push or blow the products of combustion to the exhausting smoke ejectors working in the outside openings and in this manner create advantageous circulation. The basic idea is to develop an artificial circulation in the same direction as the natural wind if possible.

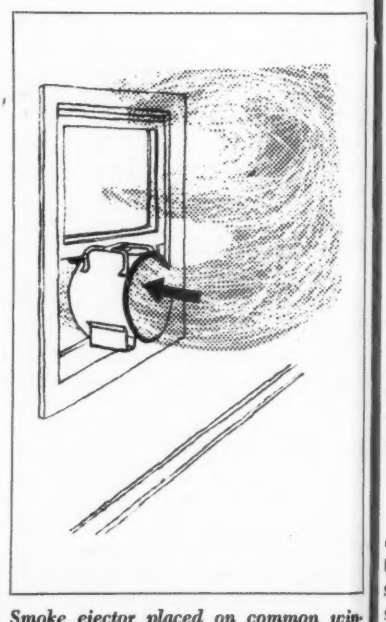
2. Place the smoke ejector as high as possible in the opening.

Heat, congested fumes, and smoke are at or near the ceiling in larger amounts than in other portions of the room at the start of the fire attack. That is the place where they should be removed first to decrease the amount of heat and products of combustion and gain visibility. The cool fresh air will come in by itself if heat and smoke are removed.

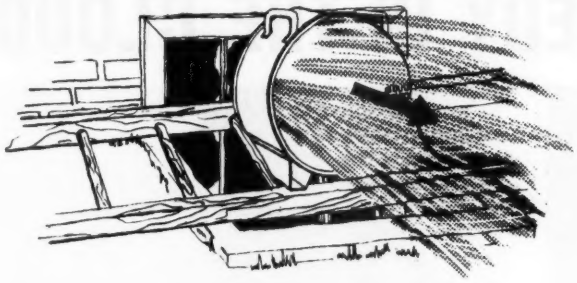
3. Use prevailing winds as much as possible.

Know the direction of wind and use it to push or blow the products of combustion to the smoke ejector. Of all the fire fighting aids, the direction of the wind is too often not known by the firemen inside the building.

If it is necessary to use a smoke ejector into the wind, cock it in such a way that the products of combustion will be expelled and not return into the building through other openings nearby.



Smoke ejector placed on common window sill. Window is lowered and hooks engaged in frame to secure unit



Use of ladder as support over window well may permit quick ventilation of basements, cellars, etc. Use of tarpaulin to seal open area around well and ejector may increase efficiency

Where it is difficult to place ejector in high windows the use of a ladder may be of assistance. Unit is hung from desired rung by means of hooks

4. Prevent the smoke ejector from "churning air."

Air will follow the path of the least resistance and will recirculate both around the sides of the smoke ejector and "in and out" of openings close to it causing a "churning action." When this is done, efficiency is lost.

To increase the desired circulation, close openings near the smoke ejector and cover the space around it as much as possible. Ideally, if you could cover all of the space in the opening, except that of the smoke ejector, it would give you the best results.

5. Control the flow of incoming air.

Set up the draft path desired and keep this circulation in as straight a line as possible. Every corner you go around will cause more turbulence and inefficiency. Avoid opening windows or doors near the exhausting smoke ejector, unless this definitely increases the circulation.

6. Prevent interference with airflow —both into and out of the ejector.

Over 50 per cent of the effectiveness is lost blowing through a common window screen. Do not blow into a wall or door close to the smoke ejector as this will cause inefficiency.

7. Timing.

As with natural ventilation, have a charged hose line at hand when ready to place smoke ejectors, but use them soon enough to prevent damage from smoke stain and smoke odor.

Remember, visibility is gained quicker and locating the fire is made easier by having smoke ejectors ready when hose lines are in position at smoky fires.

As with any type of ventilation, these rules are a unit and should be intelligently applied. One is no more important than another. Each, in a given situation, could be the most important. Too, they are basic rules and good smoke ejection requires the scientific application of good firemanship.

Whenever natural ventilation is even partially unsatisfactory, mechanical ventilation should be used. Conditions where people are sick, injured, mentally deficient, or confined makes mechanical ventilation a very desired fire fighting procedure. Pulling the products of combustion away from the occupants and their means of egress for a period long enough for their escape or their rescue by firemen, is desired and may be possible if the equipment is properly used.

Use as a blower

Smoke ejectors are not limited to exhausting the initial heat and smoke from a building. After initial ejection has started and the smoke has become thin and less buoyant, much more can be eliminated more quickly if proper blowing action is started.

1. Have an exhausting smoke ejector working on the lee side of the room or building unless this will spread the smoke to uncontaminated portions of the building or otherwise expose other property to damage.

2. Place a blowing smoke ejector at an opening where it will admit the fresh, clean air. Usually this is the low part of the opening. The floor in a doorway near an outside opening on the windward side is often very effective. Do not place the ejector directly below an opening against a wall as this will decrease the desired blowing action. Place the blowing ejector about 8 feet or more from the outside opening.

Clear the room or building from the windward side toward the exhausting smoke ejector by moving blowing smoke ejectors toward the exhausting ejector. Keep circulation line as straight as possible.

Place blowing smoke ejectors at the bottom of closets and small rooms to blow fresh, clean air in and force smoke and odors out the top of the door opening.

In residences and smaller type buildings, apply a number of blowing smoke ejectors in the lowest floor or basement operating from outside openings or suitable windows. Close all openings on this lower floor and cover the space around the smoke ejectors to create a "pressure-type" circulation to push or force smoke and odors out of air or heating ducts and other concealed spaces. It is advisable to have an exhausting smoke ejector in the floor above to remove the disturbed smoke and odor to the outside atmosphere.

Place a blower in or near an outside opening directed over all fabrics or other material which may retain

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TRAGEDY IN THE CLOUDS

Apparent point of impact of DC-8 jet, the "Pillar of Fire" Church on Sterling Place. Sexton of the church, believed to be the only person in building at time, died as a result of crash
—UPI photo

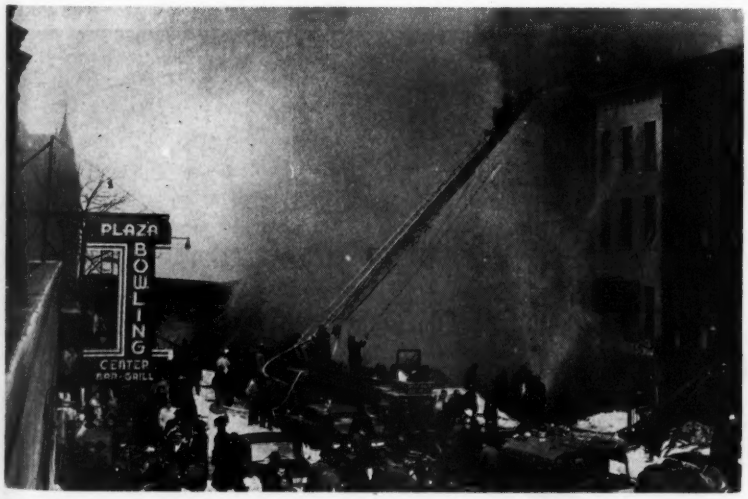
Broken tail section of jet rests at corner of 7th Avenue and Sterling Place. Fire fighters bring streams to bear on burning residences of area—N. Y. Journal American-Wide World photo

New York fire fighters scale face of burning brownstone home in effort to ascertain all occupants have been evacuated
—N. Y. Journal American-Wide World photo

Burning debris in street marks point of major impact at church on Sterling Place. While some firemen operate lines, on multiple fires, others search for bodies—UPI photo

Aircraft collision over New York kills 135 and creates two widely separated multiple-alarm emergencies for fire fighters

Fire fighters search debris of TWA Constellation crash on Staten Island. Three passengers found alive at scene died on way to or shortly after arrival at hospital —*UPI photo*



Ladder pipes received workout on roof fires in crash area as engine company personnel employed hand lines to extinguish interior and street fires. Scene is at corner of Sterling Place and 7th Avenue —*Wide World photo*

COLLISION of two airliners, resulting in death to more than 130 persons, the worst tragedy in American aviation, occurred over Staten Island, N. Y., at about 10:30 a. m., December 16. One was Trans World Airlines Flight 266, a Lockheed Super-Constellation, en route from Columbus and Dayton, Ohio, to LaGuardia. The other was a United Air Lines DC-8, Jet Flight 826, nonstop from Chicago to Idlewild. The TWA plane plummeted to the earth at Miller (Army) Field near New Dorp, Staten Island. The crippled jet roared on for another 10 miles, plunging to the ground in the Park Slope section of Brooklyn. As a result, the New York Fire Department was called upon to simultaneously fight a second alarm in Staten Island and the equivalent of seven alarms in Brooklyn.

Staten Island operations

The TWA plane disintegrated in air, and three large sections—two of them afire—fell about a quarter-mile from each other. Fortunately none of them hit buildings, although a blazing wing section with one motor landed near a home. The main section which was afire crashed onto Miller Field. Five persons were in the tail section which did not burn.

Two engine companies, two ladder companies and the chief of the 21st Battalion responded to Box 2047 which was transmitted at 10:34 a. m. Rescue Company 5 was special-called by radio at 10:37. The first engine companies on the scene immediately stretched hand lines, but the water streams barely held down the flames from the main section of the plane.

Miller Field's small crash unit, which is not equipped with turret pipes, rolled in and supplied foam to the firemen. At 10:57 a second alarm was transmitted and another ladder company was special-called to the scene. A military truck equipped with a winch responded, and the winch was used to pull the wreckage apart after firemen had cut through with axes.

A radio station broadcast the need for doctors at the scene and many responded. As a result of the appeal, a tremendous number of off-duty firemen and policemen came to the area,

Continued on page 66

Lecture on misuse of matches is given by Captain Osborn at LaMesa Fire Headquarters. Counsellor teaches boys basic facts of fire safety as part of education program to prevent future trouble

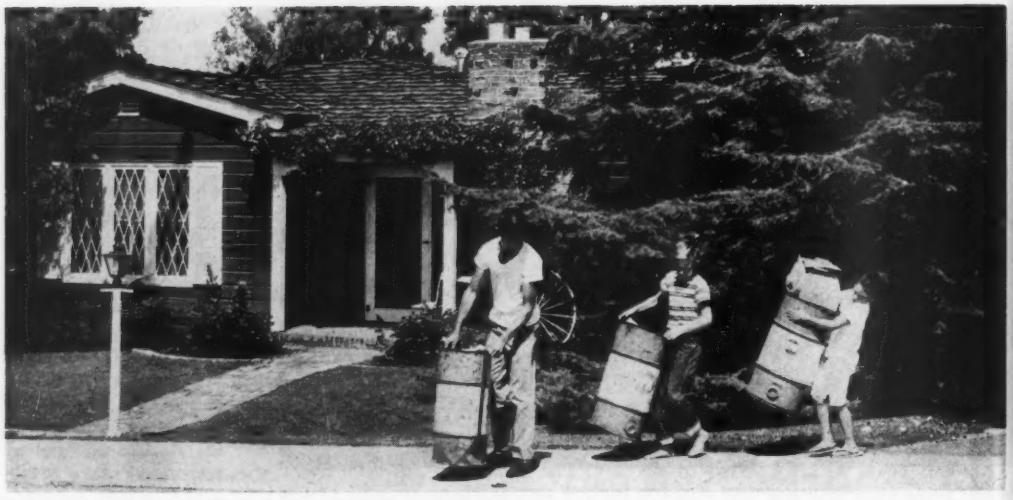
LaMesa fire fighters sit in judgment of essay read to them by boy at fire headquarters. A very serious moment for an "accidental youthful arsonist"

How LaMesa combats juvenile firesetting

By ROI B. WOOLLEY

SET FIRES, both intentional and accidental, are becoming a more critical problem notwithstanding all the efforts to solve, or at least ameliorate the condition. To many fire officials, a most disturbing factor of this situation is the part played, willingly or otherwise, by juveniles. In the City of Los Angeles, for example, between January 1 and March 14, 1960, juveniles were involved in some 20 per cent of the fires in that city. According to Fire Chief William Miller, "some of these fires were started by malicious children, others were started by mischievous children, while still others were accidental fires resulting from ignorance of the fundamentals of fire."

Data released at the 87th Annual



Part of the "home work" punishment for youthful firesetters is laid out by parents and LaMesa Fire Department. Boys prepare trash for collection during cleanup of residence site

Conference of the International Association of Fire Chiefs in Rochester, N. Y., recently, indicates that an estimated 50 per cent of incendiary fires in this country are set by juveniles, either accidentally or deliberately. The Association's Committee on Arson reported juvenile firesetting was "the most serious and perplexing problem confronting the fire service in the field of incendiarism."

To combat the problem, the LaMesa, Calif., Fire Department, headed by Fire Chief Raymond V. H. Lyles, has combined punishment with education, making both as palatable as possible. Of course, the cooperation of the juvenile firesetter's parents is an essential prerequisite to success. Securing parental cooperation is the function of the fire department counsellors.

When a child is apprehended after setting a fire, the LaMesa Fire Department does not endeavor to have him confined to a juvenile institution or made a ward of the police, but rather the effort is directed at working with the parents of the youngster as well as with the offending child himself, in their own home.

The counsellor

Chief Lyles emphasizes that much of the program depends upon the fire department counsellor who is in effect the liaison man between parents and fire department, as well as the guardian of the guilty youngster. Considerable care is exercised in selecting these counsellors. For the most part they are officers or senior firemen who have children of their own. From the moment the offending juvenile is brought before the fire department, the counsellor is a foremost figure in the program of education and punishment. Upon him, to great extent, rests the success of each individual contact and program.

Chief Lyles believes that it is imperative that the fire department counsellor first gain the confidence and cooperation of the parents before taking any initial steps toward disciplinary action. When the child realizes that his parents are in favor of the fire department program, and that they, the parents, are willing to cooperate with the counsellor in pointing out and carrying out the corrective measures, the path is clear for complete understanding between the child and the counsellor. It is then possible for the chief or one of his aides to outline a program that is designed to make a better citizen of the juvenile.

A basic requirement of the LaMesa child - parent education - punishment program for these young firesetters is for them to write an essay on fire safety or other phases of fire and its uses and misuses. The LaMesa department believes that when a child must compose his thoughts on such subjects and organize his thinking in written form, he cannot help but be impressed by their importance.

After an acceptable essay has been written, the next step—and this is important to the program—is for the child to read his composition to a group of fire fighters who may freely criticize its contents. This quasi-official board of review of firemen and the way it conducts its hearings, make a serious and lasting impression upon the juvenile. In the case of the child who is too young to prepare and present a written composition, the department finds that an oral report on fire safety is very effective.

The work detail

Perhaps the most important of the program's corrective measures is the work detail. This is tailored for offenders and continues for a period of one month. The work programs vary according to the conditions and requirements encountered in the child's home, and the suggestions advanced by his parents. According to Chief Lyles, this has proved the easiest part of the disciplinary program, because most families are eager to direct the efforts of the children into constructive channels.

The type of work assigned usually includes household and out-of-door chores which the youngster has not regularly been undertaking. Fence building, house painting, the elimination of weeds, rubbish and other fire hazards, are high among the many projects that can be undertaken in such a punishment work program. The child's outside play activities and many forms of amusement can be curtailed or suspended during the punishment period, if the counsellor believes it desirable.

LaMesa fire fighters have found that each of these penalties has a lasting effect upon the minds of these young citizens. The work program naturally should be administered, and constant supervision of the child provided for the period of punishment. This supervision, as the LaMesa Fire Department interprets it, is not necessarily the task of fire department personnel but may involve both parents and fire fighters, or parents alone.

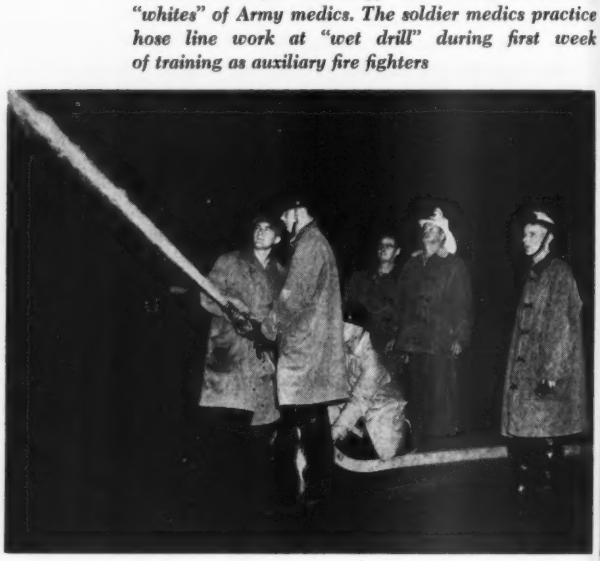
Every week the juvenile must report to his fire department counsellor and bring with him a complete report of his activities. This report must bear the parents' signature of approval. The counsellor checks the list and makes any comments he feels necessary to promote good will between the child and the fire department. This procedure continues until the child completes his sentence. It culminates with a heart-to-heart discussion which includes parents, counsellor and the juvenile.

At this point, every effort is made to leave in the minds of both youngster and parents the belief that a debt has been paid and that firesetting by at least this youth is never again to be expected. "It is this philosophy that has helped us to be very successful in our fire prevention training program of youths who have been setting fires," concludes Chief Lyle. □□

Site of canyon fire set by five children. LaMesa Fire Department counsellor, Captain Osborn, points out error in their ways to two of the juveniles

Sergeant First Class Frank Williams, an auxiliary fireman at Valley Forge General Hospital, wears Soldiers Medal and holds Chester County Firemen's Association Certificate of Merit, which were awarded to him for rescuing a man from a burning building. With the sergeant are Major General Alvin L. Gorby, commanding general VFGH, and Paul Kocker, president of the Chester County Firemen's Association

Under their fire clothing, these men wear the "whites" of Army medics. The soldier medics practice hose line work at "wet drill" during first week of training as auxiliary fire fighters



Pill rolling and fire fighting

By J. DOUGLAS BIRD, JR.

Fire Chief, Department of the Army Valley Forge General Hospital

SOLDIERS at the sprawling United States Army's Valley Forge General Hospital located near Phoenixville, Pa., are often called upon to quickly change from hospital duties to fire fighting whenever an alarm is sounded for a fire on the base or in surrounding areas.

These soldiers are trained auxiliaries who augment the 15-man civilian fire department by manning one of three pumper companies on the base. Although many hundreds have been graduated from an intensive fire school, only six soldiers are assigned to fire duty daily. The large number of trained auxiliaries permits the assignment of men to this duty about once a month.

From its inception in 1954, the use of auxiliary fire fighters has proved to be extremely beneficial to the Army and the hospital. Experience has shown that these soldiers are continuously alert to potential fire hazards, and frequently extinguish small fires about the base whether they are on duty or not.

Community relations between the hospital and surrounding communities have also benefited due to mutual aid pacts for fire protection. The Army and surrounding community fire departments have easily merged into an excellent fire fighting team. This teamwork has resulted from the participation of the community departments in the fire training program and fire prevention activities throughout the year. Volunteer firemen from Phoenix Hose Hook and Ladder Co. 1, under the leadership of Captain Park Gable, lend their 65-foot aerial ladder truck and give of their time to train soldiers in its use. The aerial ladder proved to be a highlight in the course for many of the soldiers who had never climbed anything higher than a common stepladder in their home.

The training program starts at VFGH with the soldiers spending two hours each evening for three weeks, receiving instructions in fire prevention and fire fighting techniques. According to the post fire marshal, Major Charles R. Holland, the most important aspect of the training is to get the soldiers into the right attitude. He points out that, "Fire training is something they may use at any time and at best it is very dangerous, so the men must put their best into the training in order to protect themselves whenever they may be called upon to fight fire." Motivation, or making the soldiers interested in the training, falls to the fire chief and this has also proven to be somewhat of a job. Anyone who has ever been connected with the Armed Services knows full well that seldom does anyone ever volunteer for anything, let alone fire training after normal duty hours.

"Wet" drill held

The remainder of the first week is spent in learning the nomenclature of equipment, and in hose practices. These include advancing a hose line into a building, up or down stairways and ladders, and how to handle burst lines. During this period the trainees also have the first "wet drill," which is a response on the apparatus to a supposedly burning building. The drill incorporates all the techniques practiced during the week. It is usually during this drill that the entire crew are finally sold on the training program and why they are needed to augment the civilian department.

The second week of training is spent in learning the intricacies of all

phases of ladder work. In addition to learning how to climb properly, the soldiers practice raising and carrying ladders. It is at this time the Phoenixville aerial ladder truck is used to build climbing confidence and to give the men the experience of working from a fire department aerial ladder. A "wet drill" also climaxes this week of training.

Rescue work

In the third and final week at VFGH, training is centered upon forcible entry, ventilation, and rescue practices. The latter include assisting persons down ladders, lowering injured persons with the aid of ropes and ladders, and in using the standard fire department ladder belt to slide a rope.

The conclusion of training at VFGH finds the soldiers moving out on a drill with smoke bombs being used to lend realism and to build the men's confidence in their abilities. The non-commissioned officer in charge of each fire team supervises his crew the same as a fire captain of a company. It is his duty to respond to the alarm, report to the chief in charge for instructions, and then to have his company execute whatever orders are given to him. These drills usually incorporate two or more phases of the training program such as raising a ladder to the roof of a building, then to advance a hose line up onto the roof, and to discharge water to protect an exposed building.

Inasmuch as no facilities are available for live fires at the Army installation, training shifts to the United States Naval Damage Control Center's fire fighting school at nearby Philadelphia Naval Shipyard where the school's commander, Chief Warrant Officer Beck integrates the soldiers into classes with Naval personnel going through the Navy Fire School and gives them three full days of rugged fire fighting in the school's specially constructed buildings and mock-up ships. It is at this school the soldier-firemen really learn what it takes to be a fire fighter in the truest sense of the word.

Royersford, Pa., firemen give "soldiers in white" a lesson in climbing aerial ladder. There is good spirit of cooperation between nearby fire departments and the Army auxiliary firemen
—all photos by Medical Illustration Section, VFGH

Visits to municipal departments

Every effort is utilized in building the interest and enthusiasm of the non-commissioned officers in charge of the fire brigade program. As anywhere else in the Army, the non-com is its backbone and goes a long way to making the program successful, so they are taken on special trips to the Philadelphia Fire Department's training school to observe training programs conducted for the city companies.

Participation in local parades is encouraged to build additional interest. This parade participation has been made possible by firemen from Phoenixville No. 1, Paoli, Washington of Conshohocken, West Whiteland, East Brandywine, Alert of Downingtown, and the Kimberton Fire Companies who covered in at the hospital fire station with the installation's civilian fire fighters during the absence of the auxiliary firemen and apparatus.

The wonderful good will received from local fire companies is exemplified during Fire Prevention Week each year, when these same fire companies, together with others from Berwyn, Spring City, Royersford, Fairmount of Norristown, Fame of West Chester, Merion of Ardmore, and the Friendship and West End Companies of Phoenixville all take part during the week to demonstrate or display their equipment to patients and duty personnel.

The success of the auxiliary fire training program is a credit to the efforts of the hospital's civilian fire fighters who put much personal interest into making it work. The government has benefited through the savings of many thousands of dollars yearly, and above all one human life being saved.

On January 24, 1960, Sergeant First Class Frank Williams, a hospital corpsman and auxiliary fire fighter, three times entered a blazing building in Chester Springs, Pa., to rescue a trapped occupant. Sergeant Williams then administered first aid and artificial resuscitation which directly saved the man's life. For this act of heroism the Army awarded him the Soldiers Medal, its highest peacetime award.

The civilian fire forces also recognized his heroism. At a retreat parade on May 20, when he was awarded the medal by the hospital commander, Major General Alvin L. Gorby, he was presented with a Citation of Merit by Paul Kocker, president of the Chester County Pennsylvania Firemen's Association, in behalf of the firemen's association. □□

Southeastern Chiefs Elect Officers

Fire Chief C. A. Fischer of Orangeburg, S. C., was elected president of the Southeastern Association of Fire Chiefs at the close of the association's 32nd annual convention at Jacksonville, Fla., recently. The two-day session was attended by 162 fire fighters. Fischer succeeds Chief C. L. Cox of Durham, N. C.

Other new officers include: Chief W. S. McFadden, Wheeling, W. Va., first vice president; and Chief Earl Levy, Tallahassee, second vice president. Re-elected to office were Chief C. W. Wyrick, Greensboro, N. C., secretary-treasurer; and Chief Earl R. McDaniel, Lexington, Ky., International Association director.

Speaking at the closing session, J. Edwin Larson, state treasurer and fire marshal, told the convention Florida fire insurance rates have been declining despite the state's tremendous growth in the past ten years. Much of the reduction, he said, can be attributed to an intensive program of fire safety and prevention.

Larson said it is unwise for a city not to provide funds necessary for adequate fire equipment. Money saved through rate reductions will offset the cost of such equipment, he emphasized.

London, Ont., Captain Dies at $1,000,000 Fire

Fire Captain David Moffitt collapsed and died at a spectacular $1,000,000 fire in downtown London, Ont., on November 14. A brother-in-law of London Fire Chief Milton Mathers, Captain Moffitt had been a member of the department 31 years.

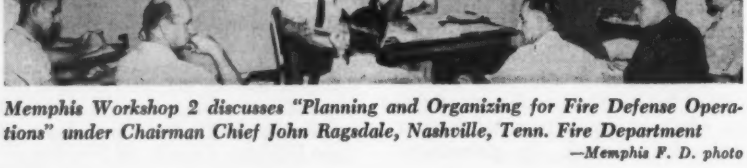
Five other firemen collapsed from smoke as the fire, described as the worst in London in 25 years, raged out of control for five hours. The flames destroyed three buildings and left 100 homeless.

East Coast Fire Service and Civil Defense personnel who attended final seminar. Meetings were held in Student Union
—U. of M. photo

National Fire Defense Seminars Concluded at University of Maryland

Chairmen (seated) and recorders (standing) of workshops at University of Maryland. (L to R) (front row) Chief Henry Thomas, NBFU, Group 3; Don O'Brien, editor, Fire Engineering, Group 4; Merle S. Lowden, director, Division of Fire Control, U. S. Dept. of Agriculture, Group 2; Robert C. Byrus, director, Fire Service Extension, University of Maryland, Group 1. (L to R) (Rear Row) H. C. Buckingham, Maryland State Forester; Robert Young, NBFU; Horatio Bond, Chief Engineer, NFPA; Kieth Royer, Supervisor, Firemanship Training, University of Iowa—U. of M. photo

Workshop 2 at Iowa State University: (Kneeling) Chairman F. W. Nelson, S. T. Moore, L. Mays, C. E. Chester. (Standing) E. Herron, J. Moher. C. Shafer, J. Shanklin, D. Unger, T. McGaughey, C. Quandt, K. Taylor, C. McNeal, N. Manchester, J. Devis—photo by G. Mills



Memphis Workshop 2 discusses "Planning and Organizing for Fire Defense Operations" under Chairman Chief John Ragsdale, Nashville, Tenn. Fire Department
—Memphis F. D. photo

LAST of a series of OCDM-fire service workshops devoted to developing training material for use at the projected National Fire Service staff and Command School was held at the University of Maryland, College Park, October 4 through 6 for the East Coast and OCDM regions 1 and 2. This meeting completed the four conferences held in various parts of the country for the purpose of permitting all interested fire chiefs and organizations to express their opinions concerning fire service operations in Civil Defense emergencies. The initial meeting was held in Los Angeles County Fire Headquarters in June to cover the Pacific Coast-Rocky Mountain area including OCDM regions 7 and 8.

During August the second seminar was held at Iowa State University, Ames, for the Mid-Western area and OCDM regions 4 and 6. The third conference at Memphis, Tenn. Fire Department covered the South and OCDM regions 3 and 5.

All seminars were well attended and provided the nation's fire service an opportunity to voice its opinion concerning the need for such training. The reports of each meeting were consolidated by the Training Subcommittee, chairmanned by Robert C. Byrus, director, Fire Service Extension, University of Maryland. The final report was submitted in the form of a recommended curriculum to the National Fire Defense Advisory Committee during its December meeting in Washington. The National Staff and Command School is presently expected to begin operations in September 1961.

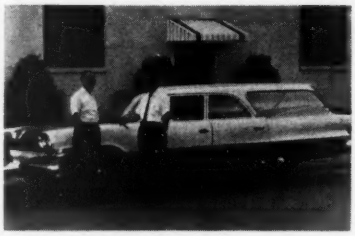
WHAT'S NEW

Among the Manufacturers

- products
- processes
- personalities

New Amblewagon

Automotive Conversion Corp., 2191 Cole Avenue, Birmingham, Mich., recently delivered a new Amblewagon to the



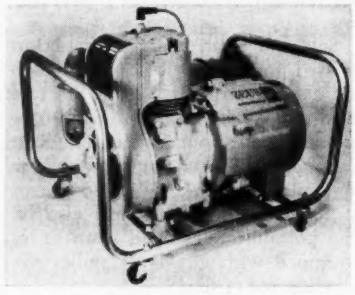
Ottawa Hills, Ohio, Fire Department. The combination Dodge Dart station wagon-ambulance is shown here as H. A. Swigert, vice president, sales, hands the keys to Chief Curtis Niles.

New Hiller Helicopter

Hiller Aircraft Corp., Palo Alto, Calif., has introduced a new four-place business and utility helicopter for marketing this year. It is powered by a 320-hp Lycoming engine.

Zeus Portable Generator

Borg-Warner Corporation, Pesco Products Division, 24700 North Miles Road, Bedford, Ohio, has introduced what is



said to be a heavy-duty portable electric generator producing 3,000 watts at 115/-230 volts a.c. Trade-named Zeus, the new Model GW-300 is powered by a single cylinder 4-cycle air-cooled engine.

New Super Vac Ejector

The Super Vacuum Mfg. Co., Loveland, Colorado, has introduced its "Plus 21," a new four-bladed electric smoke ejector. The newly designed propeller is claimed to increase the air volume by 21 per cent without increase in blade diameter.

Exide Adds Nickel-Cadmium

Exide Industrial Division, The Electric Storage Battery Company, Rising Sun and Adams Avenues, Philadelphia 20, Pa., has added nickel-cadmium batteries to its industrial line. The new batteries, having nickel and cadmium-oxide active materials contained in perforated steel pockets of the positive and negative plates, are offered in 22 sizes by Exide for use in a number of specialized applications where this type of battery sometimes is a superior power source.

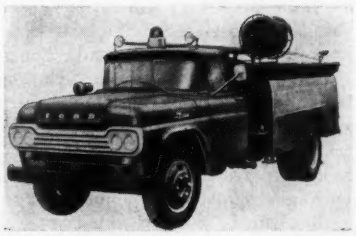
New Chemox Model

Mine Safety Appliances Co., Pittsburgh 8, Pa., has introduced a half-hour Chemox self-generating breathing apparatus. A new canister, said to be simpli-

fied to reduce operating cost is provided, as well as an automatic relief valve and monocular facepiece. It is also announced that the company has developed an optional unit claimed to provide instant operations at temperatures below zero.

Baughman Fire Tanker

Baughman Manufacturing Co., Inc., Jerseyville, Ill., is now offering its improved fire tanker, said to be excellent



for small town, rural and forestry fire protection service. The apparatus, available with tank capacities up to 3,000 gallons, features a 200 gpm PTO pump and standard fire fighting equipment.

San Francisco Crash Trucks

These modern crash-rescue-fire trucks delivered recently to the San Francisco International Airport were built by FWD Corp., Clintonville, Wis. Shown are a

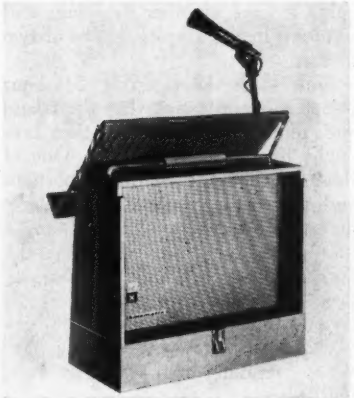
high-pressure fog-foam truck carrying 1,400 gallons of water and 300 gallons of foam concentrate and a crash truck equipped with 750-gallon water tank, 110 gallons of foam concentrate and 300 pounds of dry chemical.

Falcon Listed by ULC

Falcon Alarm Co., Inc., Summit, New Jersey, has announced that the company's Falcon automatic gas operated fire alarms have been listed by the Underwriters' Laboratories of Canada, Inc., under their inspection service.

Kinematix P. A. Lectern

Kinematix Inc., 1616 North Damen Ave., Chicago 46, Ill. has introduced its "Roving Rostrum", a transistorized portable public address system. Built into a



luggage-type carrying case, the unit opens up into a speakers lectern for use by instructors, lecturers, etc. Powered by two lantern batteries, the P. A. system is rated at 10 watts output.

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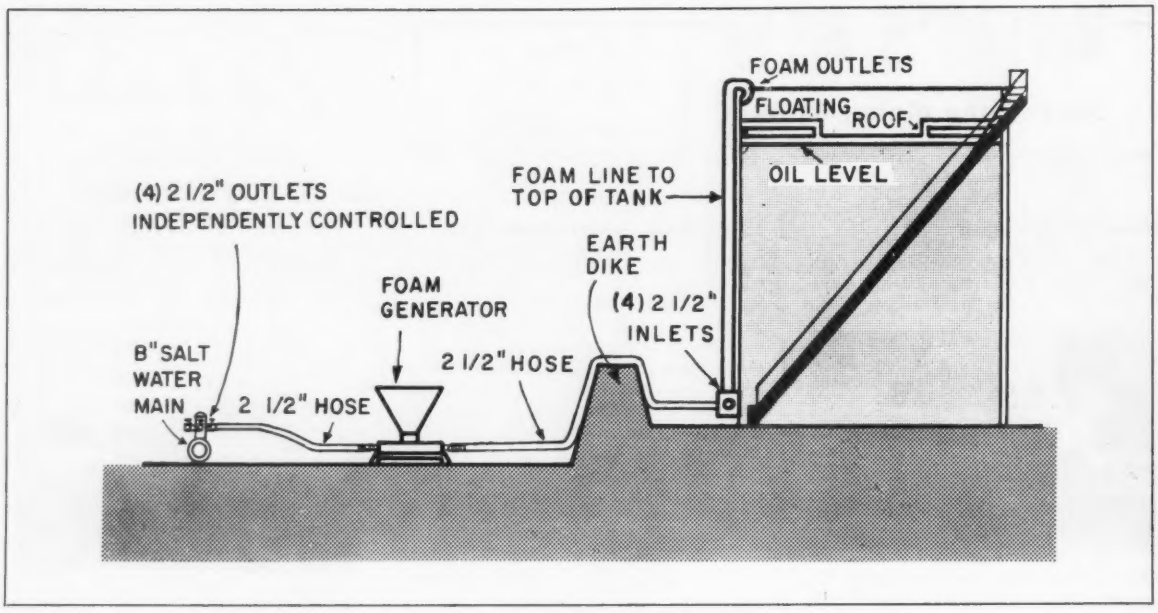


How New York firemen fought a fire in floating roof tank

SEVERAL HACKNEYED proverbs about "clouds with silver linings" and "ill winds" were dramatically discredited recently. New York City firemen had been plagued by a series of bad brush fires on Staten Island. A five-alarm crown fire swept over a four-mile-square area of the Island one day, damaging two homes, threatening a score of other dwellings and resulting in the hospitalization of two firemen.

Four days later, in a 3½-hour period, firemen assigned to the Island and reinforcements from other boroughs fought 17 brush fires. One of these reached fifth-alarm proportions and caused the response of 50 pieces of apparatus. Shortly after 6 p.m., a rain squall, accompanied by thunder and lightning, drenched the burning brush but presented an even more serious problem when lightning struck a huge gasoline tank at the Port Socony terminal of the Socony Mobil Oil Company.

This plant covers 260 acres, and contains 60 above-ground tanks with a total storage capacity of more than one hundred million gallons. The terminal has a 2,000-foot frontage on the Arthur Kill, one of the channels between Staten Island and New Jersey. The plant receives, stores and transships petroleum products in bulk. While most of this oil is moved by ships and barges, loading racks for trucks, which supply local demands are located on the property. The plant is used for storage only; there is no distilling or manufacture.

Fire Protection

The plant has one steam-driven, centrifugal fire pump, rated at 2,000 gpm at 150 psi. There are two above-ground, 8-inch mains which are normally dry, one for salt water and one for fresh. While each is independent, they are cross-connected so that, if one fails, it can be supplied from the other. A 14-inch diameter screened suction pipe supplies the salt water line from the Arthur Kill. In addition, there are two 3½-inch fireboat connections along the bulkhead. Thus, even if the fire pump breaks down or the boilers fail, water can be obtained.

The fresh water line is supplied from a 12-inch city water main, through a post indicator valve. There is also a 3-inch siamese connection for fire department pumpers. Department plans specify that, if this connection is used, a portable siamese is connected to each side of the plant siamese, thus permitting four lines from the pumper to supply the fresh water line.

Salt and fresh water hydrants are located throughout the plant. There are also 17 foam houses in the tank farm and about the yard. Each foam house contains four 50-foot lengths of 2½-inch hose, one generator, one open playpipe, 2½ x 1¾, and 50 cans of foam powder. The yard also has one portable, telescoped foam tower, equipped with guy lines, pulley and windlass for raising.

Portable fire extinguishers are also located throughout the plant. There is a box directly connected to the city fire alarm system, which has a Morse key for sending additional alarms and special calls. A watchman is stationed at the main gate, and there is watchman patrol service at night, with time clocks at extreme ends of the plant. All employees are drilled in fire fighting, and are called by a whistle signal from the boiler room. In the day there are about 12 employees in the plant, and about four at night.

Continued on page 63

SELF-CONTAINED MACK PUMPERS are ready for any kind of blaze. Here, one of Portsmouth's new C-85 1000-gpm pumpers takes suction from a nearby creek, while firemen play out the hoses. Second C-85 cab-forward unit stands by. Progress is reported on two-way radio which fits compactly in cab compartment. Both pumpers and a third on duty with another company feature 500-gallon booster tanks . . . 4½" suction hose . . . have space for 1500' of 2½" and 800' of 1½" hose. Each is powered by a Mack Thermodyne engine developing 276 hp and 640 ft./lbs. of torque.

When Portsmouth *"trips the horses"* the Macks really roll

Answering an alarm in Portsmouth, Va., means Macks on the job pronto, whether it's a routine drill, brush fire or a blaze in high-value industrial waterfront property.

Because of this quick response, Chief Odell Benton's efficiently manned Portsmouth Fire Department long ago learned they could rely on dependable Mack apparatus. In the past 17 years, Mack equipment has been found in the front lines of the busiest companies in the department.

Portsmouth's three new cab-forward Mack pumpers maintain the same high tradition . . . in only nine months they have won high praise for their performance.

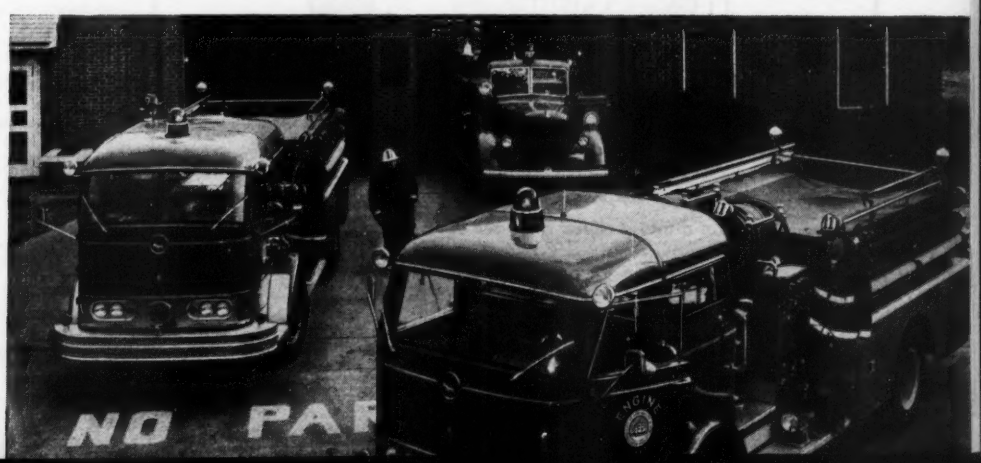
Mack apparatus pass every performance test for good reasons—Mack Thermodyne® engines, gasoline or diesel, to 276 hp . . . automatic or standard transmissions . . . air or hydraulic brakes . . . and the gear ratios and equipment you need for the most demanding fire-fighting assignment.

Investigate adding steady-performing Mack apparatus to your department. Performance records show Mack apparatus to be the most dependable in the service. Mack Fire Apparatus, Allentown, Pennsylvania. Mack Trucks of Canada, Ltd., Toronto, Ontario.

8063

MACK
FIRST NAME FOR
FIRE APPARATUS

COMPLETE LINE OF PUMPERS—500 to 1250 GPM...SQUAD AND HOSE WAGONS...AERIALS 65' to 146'...COMBINATION LADDER TRUCKS



SPLIT-SECOND RESPONSE—Both highly trained Portsmouth Fire Department and its Mack fire apparatus are on the move as soon as the bell sounds. Portsmouth took delivery of its first Mack pumpers in 1943 . . . still has them operating.

FALSE ALARMS

Point of View

The photographer's wife walked into his studio just as he was taking pictures of a number of models in bathing suits. Hauling her spouse to one side she exclaimed, "I don't like the looks of all these girls in here."

The photographer replied: "I don't either, but isn't that little blonde a beauty?"

Dispatcher: "Say I saw you out with the chief's secretary last night. Where did you take her?"

Driver: "Oh, we went to a dance."

Dispatcher: "Is she a fast dancer?"

Driver: "I'll say she is. No matter how fast I dance with her, we always wind up neck and neck."

Happiness is that state of equilibrium where your earning capacity balances your yearning capacity.

The firehouse philosopher was gratuitously expounding his views of life to a new group of rookies. "Look at me," he stated, "I am a person who even loves his enemies."

"He sure does," exclaimed one of his disgusted mates listening in a corner, "and he only has three: Women, food, and liquor."

One rainy afternoon the chief instructor decided to hold a pump theory drill in the engine company quarters. Fearful for the rating his company might receive the captain was overly attentive to every detail and appeared to be near collapse when the session started.

"Let us consider a vacuum," began the chief. "Now you all know what a vacuum is, I am sure."

Nervously the captain interrupted and said, "You know, and I know, but you had better explain for the benefit of the members who have never seen one."

The truck crew was congratulating one of its members who had surprised them all by getting married during his vacation.

"So you're married now," exclaimed one fire fighter. "How long did you know your wife before you were married?"

"I didn't know her at all," was the reply. "I only thought I did."

Little Johnny was telling his parents about his first day at school. "The teacher asked me how many brothers and sisters I had and I told her I was an only child."

"And what did the teacher say?" asked his mother.

"Oh," said Johnny, "she just said 'Thank goodness!'"

Barber shop customer: "How about a date tonight?"

Manicurist: "No, I don't go out with men who have cuts all over their faces."

Customer: But I haven't got cuts all over my face."

Manicurist: "You will have when my husband gets through shaving you."

Bad Wolf

Kinkchaser and his wife were having a violent quarrel and our hero was on the verge of losing his temper. "Be careful," he shouted, "you'll bring out the beast in me."

"So what!" screamed his better half. "Who's afraid of mice?"

The easiest way to keep up with the Jones' is to listen while their children talk.

Fireman Flintheart to engine house bum: "I'll bet you don't know what good honest work is."

Relaxed reply: "No, sir, what good is it?"

It's difficult to save money when your neighbors keep buying things you can't afford.

"When you sit there drinking coffee while the others are working you are not properly serving your city. When you as a public servant do not serve your city you are acting contrary to our democratic concept of life. When you act that way you strike at the very heart of our government. You wouldn't strike at the heart of the United States of America would you Finkenbinder? Now dump that coffee and get back to your mop!"

MIDWESTERN

Safety Clothing for Firemen

The Original STRIPED SAFETY COAT

The striped safety coat for firemen is an Original Midwestern development — first in the field — a leader ever since its introduction 19 years ago.

The BRILLIANT YELLOW stripes are actually rubberized into the black rubber . . . an exclusive feature that defies comparison with substitute or imitation models where the stripes are glued, sewed or painted on the material.

When working under hazardous conditions in smoke, fog, dust or darkness, firemen deserve the superior quality, design, comfort and safety features offered by the Original Midwestern Safety Coat.

Many Fire Chiefs who insist on the best of protection for the men of their department specify MIDWESTERN SAFETY garments to the last man because every outstanding Midwestern feature is original. All fabrics are extremely soft and flexible and have the qualities to stay that way at varying temperatures. You can always distinguish a MIDWESTERN SAFETY garment by the soft feeling of the material in both rubber and fabric type garments.

We have always designed and constructed our garments with the one thought . . . that every fireman deserves complete protection in his hazardous work of protecting life and property against the ravages of fire.

COMBINATION BUNKER SUITS

MIDWESTERN SAFETY MANUFACTURING CO.
Mackinaw, Illinois

☐ Have Midwestern representative call with complete information and prices.
☐ Send Free Catalog and fabric samples.

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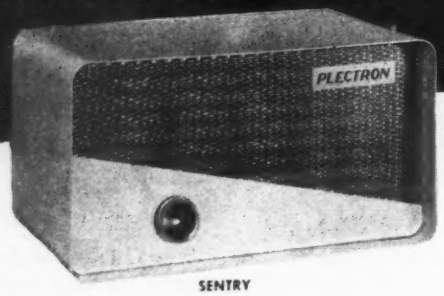
The many weights of both rubber coated and cloth type materials offered in our MIDWESTERN Quick-Hitch suit makes this combination ideal for all sections of the domestic market and export. Also, both coat and bunker pants may be purchased with or without detachable wool linings.

NONE GENUINE WITHOUT THIS TRADE

MIDWESTERN SAFETY MFG. CO., Mackinaw, Ill.
Located in the heart of the Greater Peoria Manufacturing Area
Manufacturers of the Famous MACKINAW Safety Coat

When seconds count . . . .



CRYSTAL CONTROLLED (25-54 mc)

TRANSFORMER POWERED (152-174 mc)

SENTRY

PLECTRON

RADIO TONE ALERTING SYSTEMS

SAVE

TIME LIVES PROPERTY

With a TONE Activated receiver in each fireman's home office or shop you can be certain that each member will receive the alarm messages in a prompt efficient manner.

With PLECTRON Tone Activated Receivers you get all of the normal features P L U S these extras at NO EXTRA CHARGE.

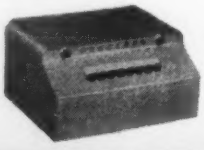
AUTOMATIC / MANUAL RESET . . . . **The user can select either operation as desired.**

ADJUSTABLE TIME DELAY . . . . . **The "live" time can be adjusted from 20/90 seconds.**

REMOTE SPEAKER OUTLET . . . . . **Remote speakers may be used in other areas, up to 300 ft.**

DISTINCTIVE NEW TONE GENERATOR

To provide the tone to activate the home receivers and alert the firemen, a NEW Fully Automatic Tone Generator has been designed by PLECTRON.



- Fully Automatic
- Transformer Powered
- Intermittent Tone
- Monitor Speaker

Designed and Manufactured by

PLECTRON CORPORATION

Overton, Nebraska

RICE . . . PORTABLE . . . SELF-PRIMING

FIRE PROTECTION CENTRIFUGAL PUMPS

- Automatic Priming
- Light Weight
- Dependable Air-Cooled Power

Write for Bulletin and Prices

RICE PUMP & MACHINE COMPANY

BELGIUM, WISCONSIN

What's Burning

THE FOLLOWING LIST includes fires of $10,000 and over in the United States and Canada for the period from November 17th to November 28th.

Jacksonville, Ark.—Graco Theater heavily damaged.

Pine Bluff, Ark.—Coleman High School destroyed.

West Memphis, Ark.—May-Graves, Inc., automotive parts and appliance warehouse, and nearby dwelling of Wilson Irvin heavily damaged.

Bridgeport, Conn.—Three-story building housing Stylecraft Upholstery Co. and adjoining Highlife Package Store considerably damaged.

Bridgeport, Conn.—Harold Building Material Co. warehouse destroyed; dwelling of Stanley Wilson damaged.

Wilmington, Del.—Old Zion Evangelical Lutheran Church heavily damaged.

Lakeland, Fla.—Lakeland Packing Co., Atlantic Coast Line Railroad building and six refrigerator cars destroyed.

Miami, Fla.—Cocktail Lounge at Miami International Airport damaged.

Miami, Fla.—Castillo de Jagua Restaurant destroyed.

Tampa, Fla.—Tampa Ship Repair & Dry Dock Co. damaged. Explosions.

Summerville, Ga.—Building housing Wilson Motor Co. destroyed.

Decatur, Ill.—Restaurant, barbershop and two other stores considerably damaged.

Monticello, Ill.—Two adjoining buildings of J. R. Heath & Son, farm implement firm, one of which housed National Bank of Monticello office and Ivan's Cafe, damaged.

Fishers, Ind.—Barn on A. W. Reynolds farm damaged.

Westville, Ind.—Employees' wing of Norman Beatty Memorial Hospital damaged.

Des Moines, Iowa—Apartment dwelling housing Mickey's Used Furniture Store damaged.

Horse Cave, Ky.—LeGrande Graded School destroyed.

Louisville, Ky.—Building housing United Auto Parts Co. and apartments damaged.

Baltimore, Md.—Stone Foster Wade Building at Spring Cove State Hospital For the Mentally Ill damaged.

Baltimore, Md.—Thom McAn Shoe Store heavily damaged. Arson.

Leonardtown, Md.—Downtown Pharmacy destroyed.

Magothy Beach, Md.—Ollie's Tavern damaged. Faulty deep-fryer.

Pikesville, Md.—James Walker Co. rope and wire sling firm destroyed. Gasoline explosion.

Abington, Mass.—100-year-old business block housing Abington National Bank, Slattery's Insurance Co., antique shop, printing firm and Wayside Furniture Co. storage area, damaged.

Marblehead, Mass.—Gilbert & Cole storage building damaged.

Elkton, Mich.—Active Industries plant damaged. Broken infra-red bulb ignited anti-corrosive oil.

Gaylord, Mich.—St. Mary's Catholic Elementary School destroyed.

Minneapolis, Minn.—Sabathani Baptist Church, 75-year-old landmark, destroyed.

High Ridge, Mo.—Causey Building housing A. Causey Upholstering Co., Western Auto Store, Lenhart Jewelry Store, Taylor Linoleum Store, beauty salon and professional offices destroyed.

Hackensack, N. J.—Building housing Town & Country women's apparel store, Bergen Blueprint Co., Helm Dental Laboratory and office of F. W. Koestner, civil engineer, damaged.

Ashland, N. H.—Lakes Region Chipping Corp. mill destroyed.

Albany, N. Y.—Dwellings at 192, 194, 196, 200, 204 and 208 Jefferson Street, damaged.

Baldwinsville, N. Y.—Grace Episcopal Church damaged. Arson by burglars suspected.

Binghamton, N. Y.—Belknap Lumber Inc. destroyed; several adjacent buildings damaged.

Hoosick Falls, N. Y.—L & S Lumber Co. damaged.

Irondequoit, N. Y.—Two barns on Paul Graffath farm damaged.
Canton, Ohio—Vaughan Bros. Co. warehouse damaged.
Columbus, Ohio — Pic-N-Chicken Restaurant damaged.
Jefferson, Ohio—Business block housing Rhode's Jewelry, David's Confectionery, Walker's Restaurant, Walker's Bowling Alley, Sandwich Bar, Durst's Paint and Supply Store, Louisville Title & Trust Co., City Loan Co., Hillyer Realty Co. and grocery building, destroyed.
Kent, Ohio—Block housing Seaver's Cafe, Moose Lodge and Ohio Ventilated Awning Co., damaged.
Poland, Ohio—Wellman's Greenhouse damaged.
New Castle, Pa.—Building housing Jefferson Athletic Club, Junedale Meat Market, Jack & Jill Cleaners and Betty Gay Shop damaged.
Philadelphia, Pa.—Four buildings at former Charles H. White & Sons Lumber Yard destroyed; Delta Star Electric Division of H. K. Porter Co. damaged.
Philadelphia, Pa.—H-R Sales Co. automotive distributors destroyed.
Williamsport, Pa. — Musical instrument plant and adjoining tire-recapping center and service station of Keefer Co. damaged.
Upland, Pa.—Supreme Electronics, Inc. heavily damaged.
Memphis, Tenn.—Ford Road Elementary School destroyed.
Nashville, Tenn.—Alford's Super Market damaged. Defective wiring.
Nashville, Tenn.—Meigs School damaged.
West Memphis, Tenn.—Rock Island Railroad trestle near Mississippi River badly damaged.
Fairfield, Tex.—Fairfield Motor Co. destroyed; adjoining Parker Chevrolet Co. damaged. Spewing gas caught fire.
Knox City, Tex.—Young's Barber Shop, Texas Theatre, Central Cafe, J. T. May Variety Store and Lowrey Dry Goods Store, destroyed; nearby McCarty Jewelry Store damaged.
Boykins, Va.—Planters Nut & Chocolate Co. warehouse destroyed.
Virginia Beach, Va.—Unoccupied Trafton-Chalfonte Hotel destroyed.
Bluefield, W. Va.—J. B. Belcher & Son, Inc. lumber plant, five company-owned employees' dwellings, tractor-trailer rig, freight car and station wagon, destroyed.
Elkins, W. Va.—Barbour County Coal Co. tipple destroyed.
Toronto, Ont.—J. E. Edwards & Sons, Ltd. leather goods firm badly damaged. □□

State Law Conflicts Affect Mutual Aid

Some Rensselaer County, N. Y. fire companies seeking to send apparatus out of New York State in answer to fire calls and to obtain repairs are finding it difficult to do so because of conflicts in the laws of neighboring states. Fire apparatus are not considered moter vehicles by New York laws and as a result do not require license plates be displayed.

In one case, the Petersburg Fire Department wished to send a pumper into Massachusetts for repairs. The Massachusetts Registry of Motor Vehicles ruled it could not be done without that State's repair plates.

In other instances difficulties have been reported when responding to fire calls for mutual aid purposes. The conflict is also reported for the States of Vermont, Connecticut and New Jersey, all bordering on New York.

Acting director George H. Proper, Jr., New York State Division of Fire Safety has reported that negotiations are presently under way between his office, and the various motor vehicles offices of the states concerned in an effort to resolve the problem.

—Fire District Topics

As true today as it was 30 years ago
137
YOU CAN NEVER HAVE TOO MANY
INDIAN
FIRE PUMPS
"THE WORLD'S BEST"
All types of INDIAN FIRE PUMPS approved by Factory Mutual.
NEW FIBERGLASS NO. 90 MODEL!
INDIAN
PATENTED
Light weight, yet strong and durable. Will not rust or corrode. Solid brass pump. Highly popular.
Send for circular.
SMITH
D. B. SMITH & CO. "for Over 73 Years the Leaders"
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PACIFIC COAST BRANCHES
Hercules Equipment & Rubber Co., Inc., San Francisco 7, Calif. and San Jose
Halprin Supply Co., Los Angeles 15, Calif.
Fred E. Barnett Co., Portland, Ore.
Fred E. Barnett Co., Klamath Falls, Ore.
Mill & Mine Supply, Inc., Seattle, Wash.
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Among the Buffs

By Paul C. Ditzel

WHEN IT COMES to lauding the exploits of their hometown fire departments, buffs play a leading role and especially enjoy telling the stories behind the stories—the accounts that often do not receive much public notice. A case in point occurred not long ago in Buffalo, N. Y., and buffs there are still talking about the conflagration which few of them witnessed, but all of them feel a kinship towards.

The national press told the story of the multimillion dollar blaze that destroyed Canada's largest flour mill at Port Colborne. What was not told was the fantastic cruise of the Buffalo Fire Department fireboat, the Edward M. Cotter. The boat made an incredible late-at-night run across Lake Erie to Port Colborne where it did heroic work in saving two million dollars worth of threatened grain elevators.

The fireboat, ill-equipped for such "deep-water" sailing, was guided across treacherous Lake Erie by a Coast Guard cutter and was at work at the fire within a few hours after the enormous Maple Leaf Milling Plant exploded into flaming fury.

Appropriately described by Columnist Bill Callahan of the Buffalo *Courier-Express* as "ambassadors in rubber boots and steel helmets," the crew of the Fireboat Cotter, augmented by the complement of the Buffalo Fire Department's Engine 8, crossed the watery international line and upon arrival found most of the mill a bellowing inferno.

The decision to respond to the Port Colborne disaster was one of the toughest ever to face Buffalo Fire Commissioner William M. Daly. This is the way it happened: Shortly after 8:30 on the night of October 7, Fire Chief Frank Diamond of the Port Colborne Fire Department called the Buffalo Fire Department and made an urgent request for the Fireboat Cotter. Commissioner Daly was contacted at his home by the alarm office personnel.

"I spent about five minutes in deep thought—weighing every angle and possible consequence of the request," recalls Commissioner Daly. "Finally, I made up my mind. I checked with the captain of the fireboat and then called the dispatcher and told him to tell Port Colborne 'We're on the way.'" Too, he sent Deputy Commissioner Jeremiah J. Doherty to the scene, via department buggy, to supervise fire fighting.

This decision left him open to severe criticism should the mission have failed, the boat foundered, or if a serious blaze broke out along Buffalo's own lengthy waterfront. In the end it paid off in cementing even stronger bonds of friendship between Canada and the United States.

"I would like to point out that the International aspects of your fire fighting operation is also being widely discussed," wrote R. C. Hammond, Maple Leaf Milling manager, to Commissioners Daly and Doherty. "The fact that your help was needed was your most important consideration. The fact that the help needed was in a foreign country was not important to you. I believe that your quick response shows more adequately than words the bond of brotherhood which exists between your country and ours."

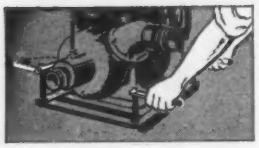
Fire Chief Diamond wrote: "The Maple Leaf Milling Company has decided to rebuild again in Port Colborne, and their decision was inspired by the fact that the grain elevators still standing are in good condition. Those buildings are valued at about two million dollars.

"When we realize that it was only the good work of your fireboat and the crew that saved these buildings, we find it difficult to find words of appreciation that are suitable. The 350 employes who will now be able to look forward to being reemployed when the new mill is completed, join with the citizens of our town and the members of our department in extending to the Buffalo Fire Department our heartfelt thanks for a job well done." Words to make Buffalo's buffs—and all buffs—proud.

The "ambassadors in rubber boots and steel helmets" included Master Pilot John O'Connor, Captain Bernard Joyce, Engineer Matt Grunthaner, Assistant Engineer Charles Halloran, Fire Fighters

Starts throwing water in less than 30 seconds!

GORMAN-RUPP DUAL FIRE FIGHTER



TRULY PORTABLE. All models come equipped with carrying handles for two-man carry. Weight varies from 160 to 166 lbs. Picture shows handles in carrying position.

Fast action is urgent, when fire strikes. And when the water source is hard to reach, there's nothing more useful to carry on your truck than a Gorman-Rupp Dual Fire Fighter.

In a bare half-minute, water starts flowing through the lines. It can supply water to the truck pumper sufficient to operate two ½-inch nozzles at 100 pounds, or pump directly to the fire.

Gorman-Rupp Fire Fighter Pumps are backed by a positive plain-language guarantee. Ask your distributor for Bulletin or write direct.

Model 61½A-23FB	50 GPM @ 110 lbs.
Model 6201 FF	100 GPM @ 80 lbs.
Model 6301 FF	210 GPM @ 40 lbs.

The Gorman-Rupp Company

305 BOWMAN ST. • MANSFIELD, OHIO

Gorman-Rupp of Canada, Ltd., St. Thomas, Ontario

James Coughlin and Raymond Dugan, all of the fireboat. Also, Junior Captain John Sheehand and Fire Fighters Francis Martin, Robert White, and John Myers of Engine 8, who augmented the Cotter crew.

A recent visitor to Los Angeles was Dr. Ralph A. Slater of 42 Waller Avenue, White Plains, N. Y. The good dentist and buff—a member of New York's Third Alarm Association—reports that erstwhile writer of topics firemanic, Barclay G. McKeough, now enjoys a column in the White Plains *Reporter Dispatch*. The column, "The Fire Roundup," contains a chatty account of firemen's activity in the area.

While in Los Angeles for a dental convention, Dr. Slater contacted Fred Allen of the Box 15 Club and visited the Westlake Signal Office, Fire Stations 10 and 28. "I was favorably impressed with the Los Angeles Fire Department personnel and equipment," says Dr. Slater.

Philadelphia's most-travelingest buff, Al Redles, secretary and director of sales for Bachmann Bros. Inc., (scale model fire engines and firehouses among other goodies) writes that he is now a vice president of the Hobby Industry Association. When not hobbying for a living, Al is following his hobby of buffing and keeping a record of every response.

"My total alarms of fire attended since I started to keep a record in 1925 now are 23,739 (to October 28, 1960). This includes the United States; Canada; British West Indies; Bermuda; London; Bonn, Germany; and Paris, France."

As an honorary Sapeur Pompier myself —courtesy the Paris Fire Brigade commander-in-chief—I can share Al's enthusiasm for the way they fight 'em in Gay Paree. (I'll not soon forget the breakfast-cocktail party the Paris b'hoys put on for me in 1951 . . . Burgundy for breakfast!)

Until the bells go down again in Paris, Hong Kong, and Philadelphia, please send along your buff anecdotes and reports to me at 4234 Don Diablo Drive, Los Angeles 8, Calif. □□

Insurance Tax Distributed

Montana insurance companies paid a tax of $746,683 on fire insurance premiums for properties located in the state during the fiscal year, according to State Auditor John J. Holmes. The Fire Department Relief Associations of Montana's incorporated cities and towns share in the distribution of this money. The funds are distributed in proportion to the amount of fire insurance premiums collected within the incorporated limits of the individual city or town. Holmes said $186,890 was distributed in this manner.

The Volunteer Firemen's Compensation Fund received $27,989 to be used for benefits for fire departments in rural areas and unincorporated cities and towns. The remainder of $531,803 was deposited to the credit of the general fund of the State of Montana.

Ernest W. Fair

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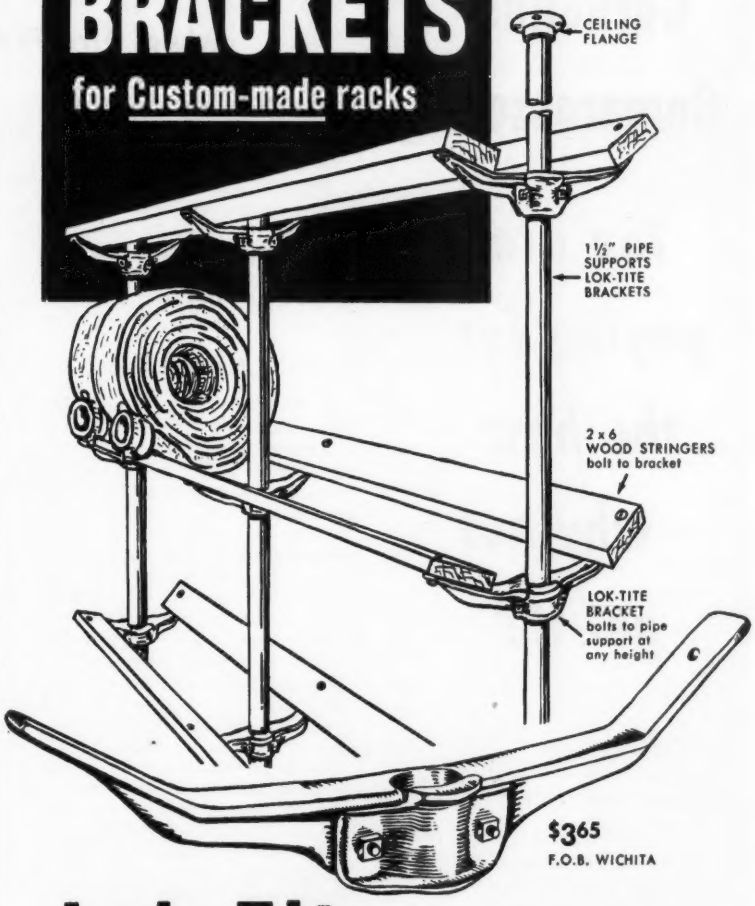
BRACKETS
for Custom-made racks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2 x 6 WOOD STRINGERS bolt to bracket
LOK-TITE BRACKET bolts to pipe support at any height
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LOK-TITE brackets are ideal for odd dimension areas where ready-made storage will not fit. LOK-TITE brackets encourage good housekeeping . . . assures easy hose inspection and correct ventilation. LOK-TITE brackets are approved by fire hose manufacturers and fire departments everywhere.

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Please send me_____brackets @ $3.65.

NAME_____

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- Simple to install
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Own a Cornelius Compressor!

You are paying for the best —why not get it?

Cornelius air compressors are first choice in fire departments from coast to coast.

If you are now buying air for your air storage tanks, why not get the extra convenience and the margin of safety for which you are already paying?

For 100% protection with air breathing equipment to meet any emergency – own a Cornelius Compressor! Ask your nearest distributor for a demonstration – or write us for FREE literature.

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BRANCHES IN PRINCIPAL CITIES

the round table

discussion of current fire department and fire management problems

School Fire Prevention Practices

THIS IS THE FIFTH installment of the Round Table on fire prevention practices in the schools.

Readers are invited to participate in this discussion which will be continued in the February issue. Address replies to Round Table Editor, FIRE ENGINEERING, 466 Lexington Avenue, New York 17, N. Y.

The Discussion

E. W. Malone, Inspector III, San Antonio, Tex.: Regularly scheduled public and private school fire prevention inspections are made. We have legal authority to inspect these schools and order violations corrected.

Automatic sprinklers are required in some cases on auditorium stages, storage rooms, dressing rooms, etc.; over enclosed platforms having a floor area in excess of 1,000 square feet, and over any usable space under such platforms, together with dressing room sections, work shops and storerooms; over enclosed platforms less than 1,000 square feet and more than 500 square feet in area, together with all dressing room sections, work shops and storerooms, when such enclosed platforms are in assembly rooms with an occupant load greater than 500. Fire detectors are not required.

We do not require that school fire alarm systems be connected directly to fire alarm headquarters.

Smoking is permitted in teacher's lounges and teacher's rest rooms only. These rooms are occupied only by the principal and teachers. Students are prohibited from smoking on premises by the school board.

Elementary and junior high schools are required to have two fire drills monthly. High schools have one fire drill monthly. Each classroom in each elementary school has a 15-minute class of instruction on fire prevention weekly. During Fire Prevention Week, an extensive fire prevention program is carried out in all elementary, junior, and high schools through essays on fire prevention and safety and articles in school newspapers. A variety of fire prevention literature, supplied by the NBFU, is delivered to all schools by the inspectors of the San Antonio Fire Prevention Bureau during Fire Prevention Week.

Classes have not been conducted for teachers and janitors, but principals and janitors have been instructed individually on proper use of fire extinguishers, keeping the telephone number CA 6-1313 handy at all times, and plans for evacuating the building in the event of fire or disaster. They are also given instructions on the proper use of fire escapes and the importance of keeping passageways and exits unobstructed at all times.

William L. Hilbish, Chief, Alameda, Calif.: We have a regular inspection program and supervised fire drills in our 20 public and private schools. Section number 13146 of the California Health and Safety Code, gives us the authority to enforce school fire safety regulations in our city. These rules and regulations are contained in Title 19 of the California Administrative Code dealing with public safety.

We have always enjoyed the best of relations with our school authorities. For example, all schools are connected with alarm headquarters by use of auxiliary fire alarm boxes connected to a street master box. In addition, the master boxes are equipped with lighted indicator panels to show in which portion of the building the alarm originated. Since we cannot legally require that such auxiliary alarm systems be directly connected to the municipal alarm system, we are especially fortunate and successful in having them so connected. Inasmuch as the private and parochial schools also agree to undertake this additional expense of connection to a master box, we point

THIS MONTH'S QUESTIONS

Do you regularly schedule public and private school fire prevention inspections? If so, do you have legal authority to inspect these schools and order violations corrected or are the inspections made on an "invitation and cooperation" basis?

Do you require automatic sprinklers or automatic fire detectors in school buildings?

Do you require that school fire alarm systems be connected directly to fire alarm headquarters?

Do you permit smoking in teachers' lounge rooms and similar restrooms?

Do you have a program for instructing teachers and school janitorial help in the rudiments of fire prevention? If so, briefly outline the subject matter.

with pride to two first-class examples of school cooperation with the fire department.

Although we have the authority to enforce rules, we never have had to use it because of this fine cooperation. The school authorities have even suggested ways of improving safety to life and reducing hazards. The school personnel request and receive periodic training for both teachers and custodians in the proper use of first-aid fire fighting appliances. Films are shown to teachers and to girls' advisors on both school and home hazards. Cooperation from school authorities made possible the elimination of lighted candles in schools. In addition, flammable decorations and curtains, including all Christmas decorations regardless of size, must be flameproofed. Fire drills are not allowed to become routine: some drills are conducted with blocked exits to require students to find other means of leaving the building in the event that normal means of egress is blocked by fire or debris.

We do not require sprinklers or automatic fire detecting devices except in certain areas such as beneath stages, in rifle ranges, etc. We do allow smoking in teachers' lounges. However, the school principal is required to see that proper receptacles are provided and that the practice does not develop hazardous conditions.

Edward H. Koerkle, Chief, Lancaster, Pa.: I feel that the Lancaster, Pa., Fire Department has a workable, practical fire prevention program in 21 of the 22 public and parochial schools. We give regular monthly inspections of school properties, and conduct the various types of fire drills, including blocked exit. Each month for a half-hour session, the fire department instructs selected pupils from each homeroom on various fire prevention subjects. A brief run-down of the type of instruction or demonstration follows:

September—organization, election of officers, explanation of the program.

October—tour of school property with fire department personnel, with explanation of hazards to be found.

November—the discovery of fire, with use of visual aids, previously prepared.

December—the Chicago school fire in story form, and Christmas fire safety, using visual aids.

January—causes of fires by slide projection, to include a quiz game relative to fire causes.

February—fire alarms, false and real; cost of alarms; working of actual alarm box; quiz game relative to the reporting of fires.

March—construction hazards; panic doors, smoke barrier doors; heat by conduction, radiation and convection; materials used, etc.

April—Simple experiments using candle, baking soda and vinegar, etc., for fire behavior and extinguishment.

May—fire extinguishers and their use, using visual aids—fire triangle, classes of fires, etc.—quiz game.

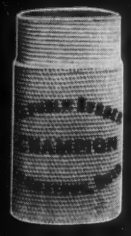
June—apparatus demonstration; aerial truck and pumper in actual laddering of

REPUBLIC

What kind do you need?

Single Jacket

or Double Jacket



Cotton

or Cotton and Dacron

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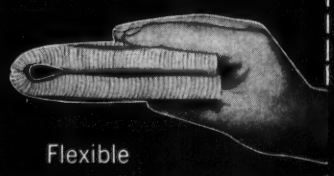
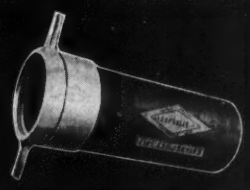


or Hard



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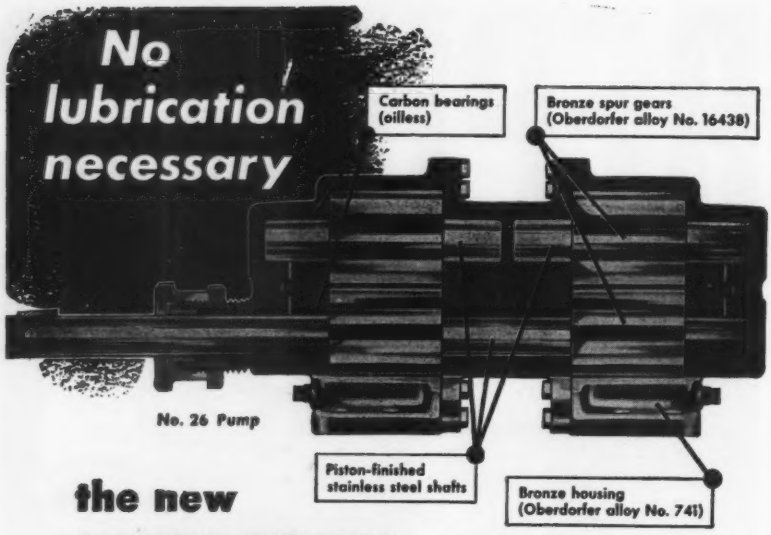
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Carbon bearings (oilless)
Bronze spur gears (Oberdorfer alloy No. 16438)
No. 26 Pump
Piston-finished stainless steel shafts
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BRONZE BOOSTER PUMPS

These booster pumps with oilless bearings will last 3 to 5 times longer than the old style equipped with plain bronze bearings. As a result of closer machining tolerances, over 20 feet of suction lift may be depended on.

The No. 13 and No. 26 Oberdorfer Pumps are more fool-proof than they have ever been. When you get to a fire you have something you can count on. It isn't necessary to wear pumps out checking them periodically to see if they will work. These pumps are metering pumps in principle and therefore must produce the same volume for every revolution of the drive shaft.

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Pump No.	Pump Shaft R.P.M.	Pounds Pressure	Hose Length and Size	Dry Suction Lift in Feet	Vol. in Gal. Per Minute
26	1600	120	500'—1½"	20'	150
13	1600	120	500'—1½"	20'	75

LIST PRICES —No. 26—$249.50 No. 13—$122.50

Slightly higher west of Rockies

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municipal and industrial fire fighting equipment

HALPRIN SUPPLY CO.

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building and hose men with hand lines playing water on simulated roof fire.

The two junior high schools in the city operate their program through a weekly 40-minute club period. All of the subjects listed are covered under the supervision of fire department personnel. Additional subjects such as atomic radiation as applying to firemen, careers in the fire service, fire department first aid, insurance facts and figures, sprinkler and standpipe operation, electrical hazards, outdoor fire safety, organization of the fire department, etc., are also covered.

Monthly bulletins, printed by the fire department are distributed to all members. Bulletins are specific for the hazard present each month, such as October's hazard, "Halloween" and November's hazard, "Leaf Burning," etc. These bulletins are read to all the class at a proper time, either by the fire patrol member or the teacher.

Membership in fire patrols covers the first six grades. Junior high school fire prevention clubs take in the students from the seventh through ninth grades. At the present time, there is no club in the senior high school.

Cards and badges are issued to each member by the fire department and at the end of the school term, a certificate of participation is awarded to each school participating, with the names of all members appearing on this certificate.

All public and parochial schools in the City of Lancaster are connected to the municipal alarm system by Gamewell master boxes.

E. L. Smith, Chief, Eugene, Ore.: Our fire prevention ordinance covers the inspection of all places of public assembly.

We do not require automatic sprinklers or automatic fire detectors. However, in one old school that had a fiberboard ceiling, we ordered either the hallway sprinklered or the fiberboard removed; they elected to remove the board.

We do not require school fire alarm systems to be connected directly to fire alarm headquarters.

We permit smoking in teachers' rest rooms.

We have a program for instructing custodial help in the rudiments of fire prevention, with the cooperation of the school district maintenance department.

William W. Nash, Chief, Greenwood, S. C.: We regularly schedule public and private school fire prevention inspections. We are given authority to inspect these schools and order violations corrected.

We suggest automatic sprinklers, but require automatic fire detectors in school buildings.

We do not require school fire alarm systems be connected directly to fire alarm headquarters.

Smoking is permitted in teachers' lounge rooms only. Students can smoke in designated areas on the grounds but not in buildings.

Fire prevention instructions are given only at teachers' request. We try to instruct janitorial help individually when building inspections are made at their schools. □□

Obituaries

Anthony J. Mullaney

Anthony J. (Tony) Mullaney, 68, retired Chicago fire commissioner, died Monday, November 28, in Mercy Hospital, Chicago. A colorful and prominent member of the nation's fire service, he served 43 years in the Chicago department and held every civil service rank except marine pilot. He was named deputy chief fire marshal in 1933, chief fire marshal in 1944, and became assistant fire commissioner and civil defense director in March 1951. He was named commissioner in March 1955 and retired on January 18, 1957.

An active member of the International Association of Fire Chiefs, he also served for five years as a member of the board of directors, NFPA, the first uniformed fire fighter to gain this distinction. During World War II, he was a member of a Strategic Bombing research team which studied effects of fire bombing of European cities. Since retirement, he had operated a fire protection consulting firm.

Edwin W. McLaughlin, NBFU

Edwin W. McLaughlin, 64, World War I hero and retired special agent in the arson department of the National Board of Fire Underwriters, died December 1 at his home in Cold Spring Harbor, N. Y. He was an arson investigator for the NBFU for more than 30 years before his retirement on October 1. During World War I, he served with the U. S. infantry and was awarded the Distinguished Service Cross, the French Croix de Guerre with Palm and the British Military Medal for outstanding service in combat.

He represented the National Board in the Wilkes-Barre–Scranton area in Pennsylvania for 25 years and was transferred to the Nassau County, N. Y., area in 1954. □□

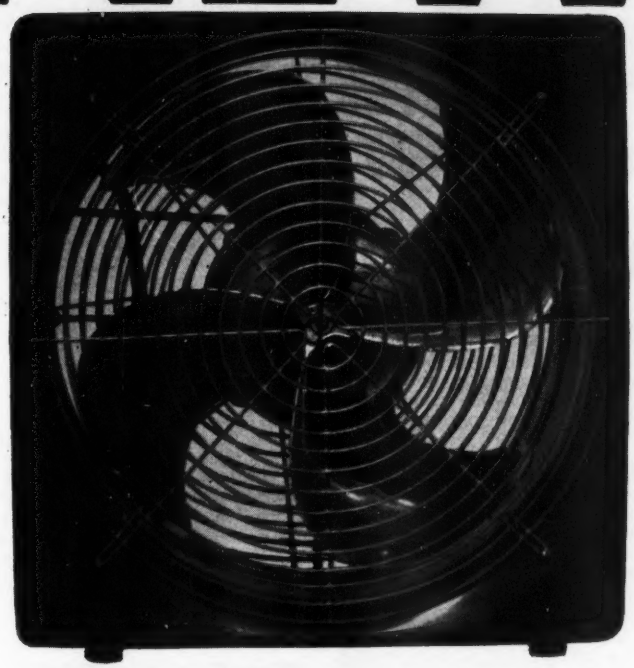
Charges Filed Against Fire Detection Salesman

Charges have been filed against a Covina, Calif., company and one of its salesmen for selling fire detection equipment in the city of El Cajon without a license. The salesman was specifically charged with soliciting without a fire department permit and a business license, failure to pay the license fee and failure to post a $1,000 bond. The company, charged with violating the same city ordinances, is said not to have been served.

The charges were filed by El Cajon Fire Chief R. M. Halgren who told FIRE ENGINEERING's correspondent that fire detection equipment which the company sold to an El Cajon housewife is not approved by Underwriters' Laboratories.

Roi B. Woolley

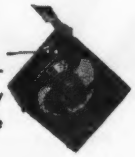
NEW



PLUS 21 4 BLADE DESIGN

HERE IS *REAL* PULLING POWER in the new Super Vac series Smoke Ejectors for fire and rescue work! Redesigned with four blades, the one-piece, cast aluminum propeller now increases the air volume over the entire blade area by 21% — a significant increase for emergency operations where seconds count. So fast, so efficient and so dependable is the "PLUS 21" propeller that it is now standard on all 12", 16" and 24" Smoke Ejectors. This means stepped up controlled ventilation of smoke-congested areas, faster rescue operations, greater safety margins.

New Shape Housing, Too!



New square-shape housing is rescue-designed for easier portability, greater strength, increased stability. It stands firmly on any of its 4 sides in emergency and carries easily (only one man) from any of its 4 corner handles.

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Dept. (or company) .....
St. & No. .....
City ..... Zone No. (if any) ..... State .....

Persons in the News

Haltiwanger Retires, Moccia Named Successor

Chief N. R. Haltiwanger, U. S. Navy Fire Department, Green Cove Springs, Fla., will retire November 1 after 41 years in the fire service. He was a member of the Jacksonville, Fla., Fire Department for 27 years, retiring as a captain in 1946. He joined the Navy department the same year as assistant chief and was named chief in 1959.

Assistant Chief T. J. Moccia has been named chief effective with Haltiwanger's retirement. Chief Moccia was appointed to the Navy fire department in 1946, promoted to captain in 1947 and to assistant chief in 1956.

D. G. Aid

Ward Joins New York Fire Safety Division

Fletcher R. Ward, former chief of the Bemus Point, N. Y., Volunteer Fire Department, has been appointed a field representative, New York State Division of Fire Safety, Office for Local Government. A past president of the Chautauqua County Fire Chiefs Association, he will cover seven western counties in the Lake Ontario area.

Hanna First Tempe Chief

William E. Hanna, 32, of Mesa, Ariz., became the first fire chief of Tempe, Ariz., on November 15 under a new setup whereby Tempe will have a fully paid department. Hanna was the unanimous selection of the city council on recommendation of the council's fire committee which has made a study of activating the paid department.

—E. W. Fair

Batsch Heads Ravenna

Assistant Chief James C. Batsch, Ravenna, Ohio Fire Department, was named Chief on October 15 succeeding to the position left vacant when his father, Chief Andrew Batsch retired recently. Chief Batsch was appointed to the department in 1948 and promoted to assistant chief in December 1957.

Ford Succeeds Duncan At Lawrence, Mass.

Frank J. Ford was recently appointed Chief of Department of Lawrence, Mass. He succeeds Chief Forrest J. Duncan who retired last spring. Chief Duncan was appointed a reserve fire fighter in 1928, and a permanent fire fighter in 1934. He was promoted to lieutenant in 1947 and to captain in 1948. He was named deputy chief and assigned as drillmaster in 1950 and became Chief of Department on December 29, 1957.

Chief Ford was appointed a reserve fire fighter in 1934, and became a permanent fire fighter in 1940. He was promoted to lieutenant in 1946, and to captain in 1948. From March, 1945, until February, 1948, he headed the Fire Prevention Bureau. He was promoted to deputy chief and assigned as drillmaster in February, 1960, and named Chief of Department on August 28, 1960.

Chief George Courser Retires At San Diego

Chief George Courser, retired December 24, from the San Diego, Calif., Fire Department which he has headed since 1947. He joined the force Christmas Eve, 1914.

At a recent civic tribute luncheon in the ballroom of the Hotel U. S. Grant, Chief and Mrs. Courser were praised by a galaxy of personalities, and showered with gifts, including a trip to Honolulu. Captain Robert Stephenson, president of the Firemen's Relief Association presented the couple with a check in the name of the organization and Lieutenant William Gibbs, president of Fire Fighters Local 145, San Diego, pinned an inscribed gold badge on the chief for "your dedicated work for better fire service for all of us." An unusual honor was conveyed by Dr. Joseph W. Telford, chief of staff of Sharp Memorial Hospital, who appointed the chief "honorary doctor and member of the hospital staff." In another tribute the chief was the guest of the U. S. Marine Corps at a special troop review at the San Diego Marine Corps Base held in his honor. A number of top officials of the Armed Forces, including Major General Victor Krulak, commanding general, Marine Corps Depot and Admiral Murr Arnold, commandant, Eleventh Naval District, attended the luncheon and ceremonies.

Acknowledging the tributes, Chief Courser said his career "proves that there is an opportunity for people to go out and get ahead if they try hard enough." The son of a retired Chicago fire captain, Courser came to San Diego in 1912. Future plans contemplate continued residence in San Diego after a two months' cruise.

Roi B. Woolley

Park Ridge Chief Honored

Fire Chief Norman A. Brown of the Park Ridge, Ill., Fire Department was recently honored as one of 15 citizens who had been chosen for outstanding and unselfish contributions to the city in its first half century. The 15 who most influenced civic welfare were feted at a dinner banquet held in their honor and commemorating Park Ridge's golden anniversary as a city.

Chief Brown, a native of Park Ridge, was cited for his everlasting devotion to the furthering of better fire safety rules and regulations for the 33,000 people entrusted to his care. A veteran of 24 years service, he has served as vice president of the Cook County Firemen's Suburban Association in 1954, and was elected president the following year. He serves on the board of directors of the Illinois Firemen's Association, and is a member of the Illinois Fire Chiefs Association and the International Association of Fire Chiefs.

Zinser Succeeds Puderbaugh As Chief of Oak Lodge, Ore.

Cleone Puderbaugh, chief of the Oak Lodge, Ore., Fire Department, for the past 10 years, has resigned to accept a position as fire insurance investigator in Portland.

Harold Zinser has been named the new fire chief.

Beadle Named Chief Of Union City, N. J.

Edward A. Beadle was recently sworn in as fire chief of Union City, N. J. He was appointed to the fire department in November 1935, and three years later was promoted to captain. While on active duty with the U. S. Army Air Corps in 1943, he was promoted to deputy chief.

Chief Beadle is a graduate of a course in municipal fire administration at Rutgers University. While in military service, he was sent to Chicago where he studied at Illinois Institute of Technology. He also has attended fire classes at the Delehanty Institute, New York City, for six and a half years.

DO YOU KNOW...?

Q. What is a Hi-Light Badge?

A. A revolutionary new lightweight Blackinton Badge designed for featherweight comfort, service and appearance.

Q. Why was Hi-Light developed?

A. It was originally designed for use on lightweight summer uniforms, but has become extremely popular for year round wear.

Q. Just how light is a Hi-Light Badge?

A. A Hi-Light Badge is actually one-third the weight of a conventional brass badge, so light you hardly know you're wearing it.

Q. What other superior qualities does Hi-Light have?

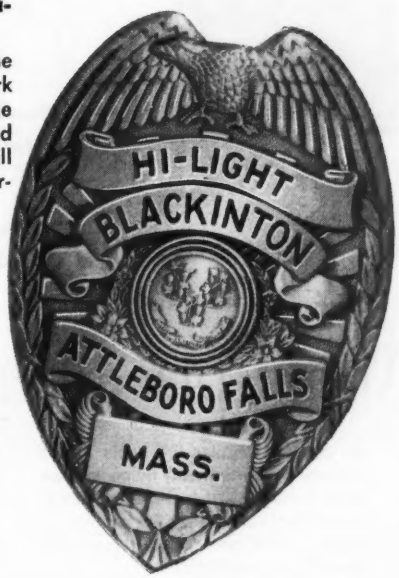
A. Even though the badge is made from an entirely new feather-light metal, it retains the same durability and high quality deep cut precision die work that has made Blackinton badges famous.

Q. What finishes are available on Hi-Light Badges?

A. Three gleaming finishes, brilliant polished nickel, long-lasting rhodium and rich lusterous gold plate.

Q. How can I recognize a Hi-Light Badge?

A. Every Hi-Light Badge has the Blackinton Hi-Light trademark stamped on the back of the badge. It's featherweight and this recognized trademark will assure you of buying and wearing the best.



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ARSON

Continued from page 35

Thirty-eight per cent of those suffering fire losses in 1911 had previous fires. Fake affidavits, ample supplies of false inventories used to support false proofs of loss, crooked adjusters and insurance personnel, all contributed to this deplorable situation.

But, New York City was not the only area affected. The commissioner pointed out that organized arson gangs and trusts with hired torches, charging fees ranging from $20 to $25 — 1912 dollar value — traveled between Chicago, Boston, Pittsburgh, Philadelphia and New Jersey. Some of those so engaged were females. A Chicago arson trust, as it was known, caused an estimated $10,000,000 loss in eight years.

This situation, it seems, to a given degree went on unchecked for the better part of the first quarter of the century. It was, undoubtedly, slowed down by a tightening of insurance business policies and enforcement, but it would appear that the lack of communication, transportation and knowledge was a definite handicap to enforcement and prosecution.

Fraud fires and the economic trend go hand in hand. The depression of the 30's brought with it scores of profit fires and an opportunity for arson gangs and hired torches to flourish. Around 1934, special agents of the National Board of Fire Underwriters, working in cooperation with the Fire Marshal's Office of New York City, precipitated the arrest of "Sammy the Torch" who, it was learned, was responsible for setting more than 120 fires in the city area over several years. He talked freely to reduce his maximum jail sentence and involved the other usual ingredients of the conspiracy—crooked adjusters and brokers—some of whom with him were sent away for long terms. Perhaps this case with its resultant publicity stimulated action throughout the country. Arrests and convictions of torches followed and in due course, their activities ceased to be a major problem.

Pyros, pathological fire-setters and fires by juveniles and young adults were, undoubtedly, recognized as a problem, but more than likely too nebulous for thorough understanding. This possibly accounts for the almost complete lack of information on the subject during the early years of the century.

Fraud fires few in boom times

During World War II and for the years immediately following it, business conditions boomed, materials were scarce. These conditions are not conductive to fraud fires, which dropped off almost to extinction. Perhaps it was this fact, along with a fairly consistent annual incidence of arson and the increased problems of so-called juvenile delinquency in our culture that gave rise to a more thorough analysis of the causes for incendiarism. Papers on juvenile delinquency and irrational firesetting began to appear at arson seminars. The number of cases on which NBFU special agents worked annually began to take on a new look and, for several years preceding the brief 1958 recession, the majority of fires seemed to have been set for other than fraud purposes by juveniles and "pathologicals." A 10-year study of National Board arson cases by psychologists Dr. Nolan Lewis and Helen Yarnell resulted in the publication, in 1951, of an enlightening book on "Pathological Firesetting," which has stimulated thinking on the subject and has been a splendid reference source.

Statistics on fire causes for the past 10 years reveal that, while the num-

What price peace of mind?

We conduct regular fire drills in our schools. We periodically inspect these same buildings for fire hazards. Many departments and other fire protection people teach our children good fire prevention practices.

All that is important...and as it should be.

But we must go a step farther if we intend to do the whole job... if we really want the peace of mind that comes from a job well done.

We have to begin at the beginning.

School architects and engineers usually specify the finest fire protection systems available... but somewhere between the drawing board and the occupied school building well meaning but ill-advised economy creeps in, and the results are often little better than no protection at all.

Only alert, interested citizens can correct this widespread practice. In the meantime, Autocall will continue to build up to a standard and not down to a price... we will refuse to build inadequate fire protection equipment at the expense of snuffed-out lives.

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SALES OFFICES IN PRINCIPAL CITIES

ber of fires has increased and losses have soared, the ratio of incendiarism to all fires has been fairly constant, with only an imperceptible rise. Of course, this ratio and the destruction to lives and property by incendiarism are cause for concern. Yet it appears that present-day enforcement is holding its own in dealing with this outrageous crime.

Of even greater concern, however, is the rate of fires of unknown origin with an annual average destruction to property of $297,000,000 and one-fourth of the annual loss of life.

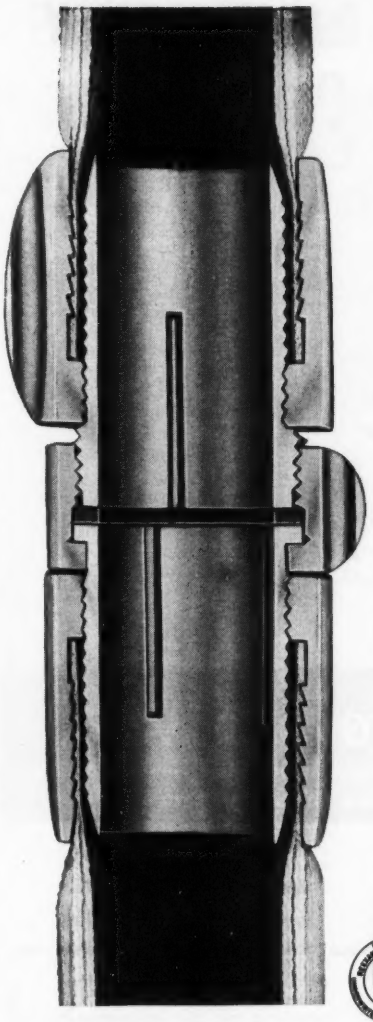
Fires of unknown origin occur five times more frequently than incendiary or suspicious fires and are 10 times as costly. Many of the fires in this category have probably been "set" for one motive or another. This poses a great challenge to our fire services to become more proficient in arson detection and to spend more time trying to determine the causes of fires. When the cause is carelessly determined, completely ignored or casually classified "Cause Unknown," someone may unwittingly be aiding a vicious criminal to conceal his crime. Proper classification of fires, aside from helping to solve the arson problem, gives fire prevention engineers data on which to base new efforts to reduce the appalling loss of life and property due to fire.

With the recent recession, a lack of liquid funds and management inattention, arson for profit has again definitely increased.

Juvenile firesetting

Juvenile firesetting is still a major problem, however. Of the 3,500-plus cases on which NBFU special agents worked in 1959, 657 of them, after a thorough screening, appeared to have a profit motive. The total insurance carried by the companies at risk on these cases amounted to $22,000,000. This represented a *potential*, not the *actual* loss. In 138 of these cases, arrests were made and insurance at risk amounted to $3,500,000. In all, 217 persons were arrested in connection with the 138 cases, 119 of whom were the insureds. We note, therefore, that roughly one of every five fire investigations by National Board special agents during the past fiscal year was considered a probable fraudulent loss. This reflects a change in the conditions of 10 to 15 years ago when possibly the percentage would have been one out of every 10 or more investigations.

One large southwestern state was well in front with 85 such investigations, and one of the larger western states was next with 78. This fact



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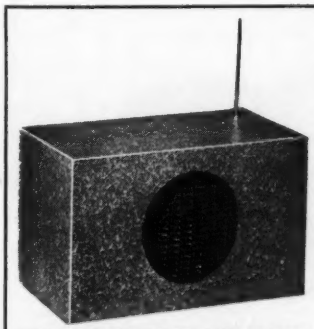

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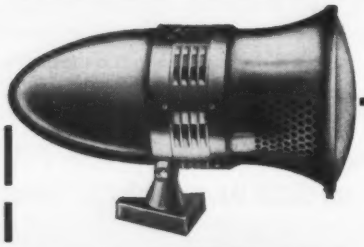

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could possibly be accounted for by the size and population of the states, plus the fact that more special agents are assigned in them than in most other states. The occupancies most frequently involved in losses of this nature were private dwellings. This one category accounted for more than 50 per cent of all such fires investigated. Next in line came restaurants, taverns and cafes, as a group, while the third-ranking occupancy proved to be retail stores.

These figures dealt only with cases in which National Board special agents actively participated. They do not include many of our larger city statistics. It is conceivable that the over-all picture might be somewhat revised if more adequate figures were available.

In summing up, one might say arson, for various motives, has been and probably will be with us for all time. Much has been accomplished at the Federal, state and local level, however, to protect society from incendiarists. □□

MECHANICAL VENTILATION AIDS

Continued from page 37

smoke to remove as much of the odor from such material as is possible. After this action a smoke neutralizer or deodorant may be used to good effect.

Precautions

Prevent curtains, drapes, etc., from covering or entering intake of smoke ejector or covering its guard. Supervise traffic in the area of a smoke ejector on a floor, especially where there are women with dresses. The suction action of the smoke ejector can draw a dress into the unit and do damage. Keep children away from any operating smoke ejector.

Never pick up any smoke ejector by anything but its handles.

Do not operate smoke ejectors too long in severe cold weather, especially, if the fire has affected the heating system. The increased air circulation could cause water pipes to freeze and occupants to become cold or lead to their becoming sick. Remember, the very young and elderly are susceptible to cold.

Prevent blowing papers, loose material, debris, or dirt around which could add to the damage or inconvenience the occupants.

Be careful that doors and other obstructions in the air path do close and shut off air circulation. □□

FLOATING ROOF TANK FIRE

Continued from page 46

Lightning struck gasoline storage tank #56 at about 7 p.m. April 25. This tank is about 53 feet high and 120 feet in diameter, with a concave roof supported by pontoons (which rise and fall according to the amount of gasoline in the tank). It contained about 3,800,000 gallons of gasoline at the time of the fire. There is a rubber composition seal around the perimeter between the floating roof and the tank shell. Three equidistant foam risers are permanently affixed to the outside of the tank, and discharge at the tank rim so that the foam flows down the inner side of the tank shell around the floating roof.

Foam from riser insufficient

Joseph F. Klecka, chief of the 23rd Battalion, was first to arrive on the scene. Burning vapors had ignited the rubber seal around the roof, and one-quarter to one-half the seal and vapors above it were burning intermittently. Flames were also showing above the vents and other openings in the tank roof. The plant fire brigade was operating one foam generator, using single powder chemical, and supplying one of the tank's foam risers. The foam from the riser flowed down the inside tank wall to the floating roof about four feet below the tank's rim. However, there was not sufficient foam from the riser to flow fast enough to prevent ignition of the vapors along the seal. Then, too, the foam flowed down the slope from the riser to the central lowest point of the roof, and had no effect on the fire around the seal.

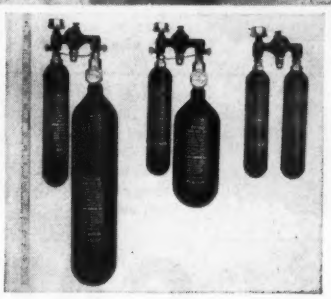
Chief Klecka made his size-up from the top of the tank, and decided upon an immediate attack directly on the roof fire, in addition to supplying all foam possible via the foam risers.

In his preliminary report to the dispatcher via radio, Chief Klecka special-called Rescue 5 and Engine 151. He requested that the units responding get directions at the main gate to insure prompt response, and that Engine 151 supply the siamese connection and open the post indicator valve to the fresh water main.

Joseph Salamon, in charge of the plant brigade, assured Chief Klecka that the plant fire pump, operating at 150 psi, could supply adequate foam streams. The Chief ordered the brigade to use available pick-up trucks to procure additional cans of foam and dry powder extinguishers. He also ordered additional foam generators to be used and to supply the other foam risers to the tank.

Positive Pocket-Sized Protection

...against breathing hazards



Now firemen can add precious minutes to their search for trapped victims. Rockwood's lightweight PocketAIRE, the most compact self-contained breathing apparatus made, permits firemen to put in action faster and work more efficiently without hindrance by bulky equipment. PocketAIRE is small enough to fit in pocket, clamp to fire coat or be worn in a shoulder harness.

What's more, by using pure, clean oxygen PocketAIRE supplies the most concentrated, most effective element to safeguard human breathing. Another *extra* protection feature, on all PocketAIRE units, is the safety cylinder that allows 5 minutes for escape. Three models are available for a full 30 minutes . . . a full 20 minutes and a full 10 minutes. Cost pennies to refill and no maintenance required.

Protect every fireman in your department with economical, safe, simple to use Rockwood PocketAIRE.

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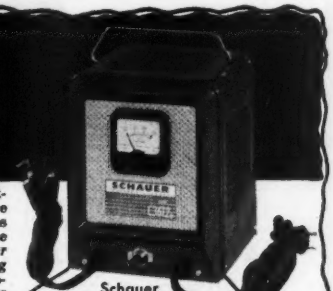

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Fire Fighting

Engine 156 connected to a yard hydrant in front of the tank, using a 50-foot length of hose to keep the pumper away from the tank and to avoid obstructing the roadway, and supplied water for foam lines. Assisted by Ladder 79, 156 stretched a foam line up the spiral stairway on the outside of the tank, and extinguished the fire on the roof near the stairway. This permitted them to advance onto the roof and direct the stream at the roof seal to prevent the fire spreading. They were making progress until their line burst and they lost their stream. However, the fire extinguished by this line remained out and left open a means of access and escape between the roof and the stairway.

Ladder 79 brought roof ropes and life belts to the tank roof, to provide an escape for the men in the event of a flashback and set up a hose roller on the tank ledge for hoisting 2½-inch foam lines. They helped 156 advance its line, and brought foam and dry powder extinguishers to the roof as well as fire brooms and shovels.

Dry chemical used

While a second line was being hoisted into position, Chief Klecka ordered that all available dry chemical extinguishers be brought to the roof. The men spread out to cover the burning area, and simultaneously operated five 20-pound extinguishers. This knocked down almost all the fire, but it reflashed. It is believed complete extinguishment could have been achieved with several more dry chemical extinguishers—possibly eight or ten used simultaneously.

Engine 161 advanced the second foam line to the roof, and directed the stream against the inner wall of the tank onto the burning seal. Other firemen used fire brooms and shovels to push the foam from the center of the roof onto the seal.

These operations seemed to have extinguished the fire, with no flame showing. However, an explosion and reflash occurred probably due to hidden flame below the floating roof or because of the heated metal of the tank. After the fire was out, 3/8-inch steel plates near the top of the tank. were found buckled, indicating sufficient heat to ignite the gasoline vapors.

Rescue 5 helped the companies stretching lines up the stairway to the tank roof; they set up foam generators, operated dry powder and foam extinguishers on the roof and rigged up roof ropes and life belts at the tank rim for escape. Engine 256, a Brook-

lyn unit covering for Engine 159, assisted Engine 151 in supplying the yard hydrant system.

Supervising Engineer Unit #1 checked the yard hydrants, mains, the plant fire pump, foam generators and pumper operations. They also checked the foam risers' supply to the roof and assisted in the roof operations.

The other units helped in stretching lines, assisted the plant fire brigade, supplied foam powder and extinguishers, replaced two burst lengths of hose and supplied the forces operating on the roof.

The concentrated attack with foam lines, brooms and shovels extinguished the fire around the burning seal and other openings, but one vent continued to burn vigorously. It was permitted to burn while a more adequate foam blanket was applied to the perimeter. After several minutes, one 20-pound dry chemical extinguisher was brought up and extinguished this last remnant of fire. This completed the fire extinguishment. A sufficient blanket of foam was then applied to the tank roof to seal all openings without excessively loading down the roof.

The fire was extinguished by four foam lines and the extinguishers mentioned. The operating force used 252 50-pound cans of foam powder, four generators and hoppers, six 20-pound dry chemical extinguishers and four 2½-gallon foam extinguishers.

Nine land engine companies, one ladder company, one rescue company, a fireboat and two special units had responded or been special-called to the fire. Complete extinguishment took approximately two hours. □□

Evansville, Ind., Fireman Killed by Wall Collapse

Malcolm Norman, an Evansville, Ind., fireman and father of four, was killed by the collapse of a concrete block wall while fighting a fire in a vacant house on June 17. Norman had been a fireman a little less than a year. He was appointed as a rookie on June 26, 1959, and became a regular fireman five months later, according to Fire Chief Fred Houghland.

Captain Raymond Helfrich was also caught in the collapse, and critically injured.

Fire Inspector Joseph Ohl said the fire started from a trash fire on the porch of the building. The owner of the building had been dismantling it, and is reported to have been burning trash shortly before the fire was reported. He claimed that the walls were cracked in many places and, if he had been present, would have warned the fireman about their instability.

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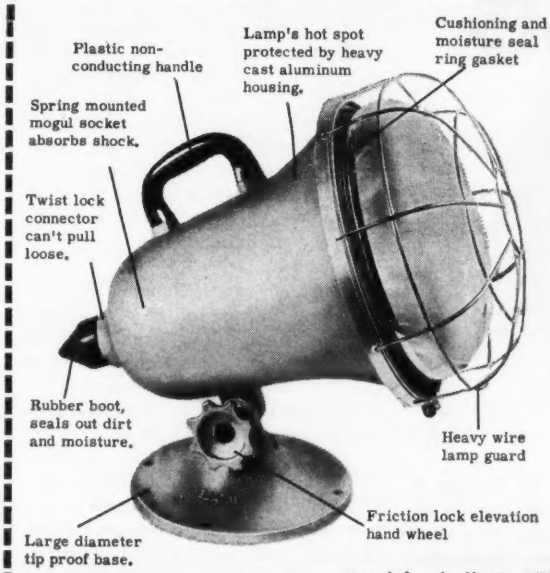
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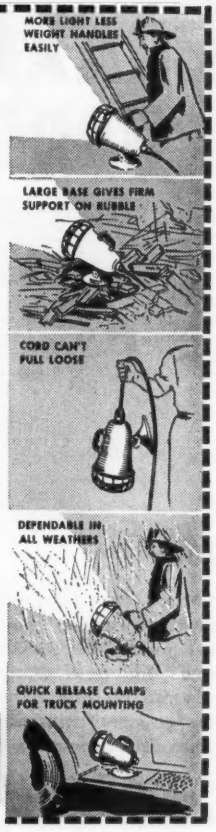
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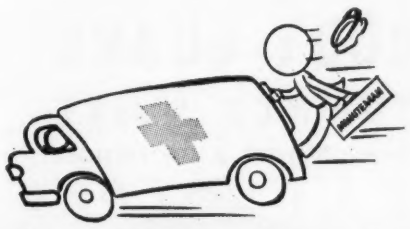

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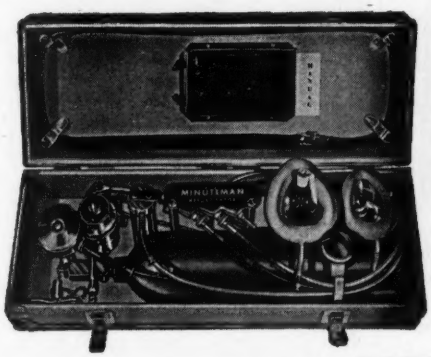

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TRAGEDY IN THE CLOUDS

Continued from page 39

volunteered their services and helped in the operations.

Three passengers taken from the tail section were rushed by helicopter to the U. S. Public Health Service Hospital, but none survived. In all, 39 passengers and five crew members of the Constellation died. The scattered fires, mostly from gasoline spill, were declared under control at 11:53 a. m., although search and rescue operations continued throughout the day.

Members of Richmond Engine Company 1, one of two volunteer fire companies still in service in New York City, responded and assisted in the operations at Miller Field.

Meanwhile, on the North Shore of Staten Island, two hoods were quick to take advantage of the tragedy. While almost every available policeman was on duty at the crash scene, two gunmen, wearing women's outer clothing, held up the New Brighton Savings and Loan Association and made off with $11,723.

Brooklyn disaster

Two minutes after the TWA Constellation crashed on Staten Island, residents of the Park Slope section of Brooklyn were horrified to see the United jet, ablaze all over, roaring earthward 60 to 90 feet above the roofs of the three and four-story brownstone houses. Disintegrating in the last few hundred feet of its flight, the main section smashed into a church named, ironically, the "Pillar of Fire." An intact tail section came to rest in the middle of the nearby intersection of Seventh Avenue and Sterling Place. Debris and fire were scattered over the neighborhood, sections of the wings pierced some roofs and fire immediately involved 10 brownstone houses. Where the church, a two-story building with steeple, had stood, there was now only a smoking pit, 25 feet deep and 50 feet across.

Flames leaped three stories high and thick black smoke filled the area. At least 24 autos were damaged as well as a funeral home, barber shop, bakery, garage and several of the 16-family apartment houses. More than 200 persons were made homeless.

Within two minutes after Box 1231 was transmitted at 10:36 a. m., the full first-alarm assignment was at the crash and the battalion chief had radioed back that "all hands" were at work. The second alarm was transmitted at 10:39, the third five minutes

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later, the fourth at 10:48 and the fifth at 10:50. All the engine and ladder units that would normally respond to a second alarm for Box 174, Manhattan, were called to the Brooklyn crash scene at 11:12 a. m. The latter resulted in the equivalent of seven alarms. A total of approximately 50 pieces of apparatus responded, including those from Manhattan. More than 200 off-duty firemen came to the scene and volunteered their services.

Fire fighting

The first job of the firemen, according to Chief of Department George David, was to put out the fire in the plane itself. There was no problem of evacuating the buildings because the occupants had fled and most of them were on the streets by the time the first firemen arrived. A special unit brought chemical foam to the scene for use on the jet fuel fires, but it was not needed as the water streams contained the fire without difficulty.

While the plane fire was fought, other firemen went to work on the tenements. They raised ladders and advanced lines to the roofs and upper floors where pieces of wreckage had smashed through walls and burned holes in the floors below.

As soon as the fire in the plane was out, rescue crews with stretchers moved in to remove bodies from the wreckage. Getting into the plane did not, in itself, pose any special problem as the impact had split open the fuselage, and some bodies were scattered around outside the plane. However, debris from the demolished church had to be removed and this was time-consuming. Several tottering columns of the church were still standing early in the operations and these wavered whenever a fireman brushed against them. As a safety measure, the firemen knocked them down with 6-foot hooks.

Although the building fires caused by the crash were declared under control shortly before 1 p. m., debris smoldered far into the night. Approximately 150 firemen remained on the scene through the week-end searching for residents of the area possibly buried under some of the rubble.

While the editors of FIRE ENGINEERING listened to radio reports as the grisly drama unfolded at Staten Island and Brooklyn shortly after the planes collided, the tragedy took on a personal note when it became known that a fellow editor and personal friend, Arthur F. Schuelke, general manager of three Reuben H. Donnelley textile publications was aboard the ill-fated United jet. □□

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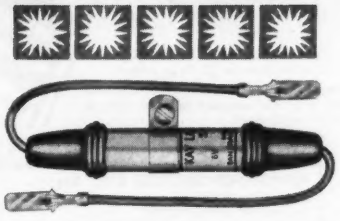

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Los Angeles makes major changes

By CLIFF DEKTAR

THE MOST EXTENSIVE reorganization in the history of the Los Angeles City Fire Department has been approved by the city council and is now under way. Completion of the plan is scheduled for January 1, 1961, when the department will be three-platooned in all fire fighting field positions from battalion chief to fireman.

In addition, the following changes will or already have been made: Vast expansion of the city's rescue service, reduction of field battalions from 16 to 14, expansion of field divisions from four to five plus establishment of a Mountain Patrol Division, and a radical change of assignment for assistant chiefs who have been serving as field division commanders. Also included in the "package" presented by Chief William L. Miller to the city council were the closing of two old fire stations in the downtown area and the construction of eight new stations during the 1960-61 fiscal year.

Closing of the two stations, 16 and 23, will not affect tactical operations in the central district. Both are old stations constructed during the days of horse-drawn equipment and their first-in areas can be easily covered from adjacent stations.

Three-platoon system

The three-platooning came after nearly four years of extensive study by Chief Miller, Administrative Deputy Chief Don Hibbard and other executives of the L.A.F.D. It will solve deficiency in company officer and battalion chief ranks that has seriously hampered maximum efficiency of the department, according to Chief Miller.

One hundred and twenty-eight new captain's positions will be authorized and filled, bringing strength to 472. The change-over will bring an immediate increase of 377 engineer ranks. No further appointments will be made in the old auto-fireman (driver) classification.

Another major point will be elimination of the city's five existing rescue companies in downtown Los Angeles, Hollywood, West L. A., Southwest L. A. and the Harbor. Under the new plan rescue units will be combined with salvage companies in all sections of the city except the San Fernando Valley where the existing rescue-ambulance service will continue. Salvage units use trucks with compartmentalized bodies and will be easily converted into dual use. Conversion of the salvage units to the new "squad" companies started in July and when completed there will be 15 two-man squad units.

One fully manned salvage company will remain in service at Station 28 in the downtown area to service the high-value district. Existing squad 23, a unit which carries special breathing equipment and other tools and is used to provide manpower in the high-value district—and elsewhere when needed—will be moved to new Station 9 when completed.

Field battalions reduced

Field battalions will be reduced from 16 to 14 and divisions will be increased from four to five plus a Mountain Patrol Division. Under the new plan, assistant chiefs, who have served as commanders of the four field divisions on a three-shift basis, will work a 40-hour week in more of an administrative capacity.

Division command posts will be at Station 10 in the southern part of Downtown; Station 27, Hollywood; Station 38, Harbor; Station 39, Van Nuys in the San Fernando Valley; Station 92, Rancho Park in West L. A., and the Mountain Patrol.

In addition, three assistant chiefs will work 24-hour duty to cover large fires at night. They probably will operate out of Station 6, adjacent to the Freeway interchange just west of Downtown. During days, these chiefs will receive headquarters assignments. The battalion and division changes were expected to take place October 1.

The last major change in the L. A. Fire Department administrative structure occurred in 1956 when seven deputy chief positions were authorized to provide a new executive complex for the department. Chief Miller reports that an extensive training program has been set up for officers in all new positions and also for personnel in squad companies. □□

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Annual Reports

Rochester, N. Y. — Chief George L. Holzschuh calls attention to the emphasis placed on fire prevention and fire training during 1959. He notes that while total alarms increased over 1958, the fire losses were substantially reduced.

Dominion of Canada—Dominion Fire Commissioner C. A. Thomson calls attention to the contrast in fire death rates between city and country areas. He notes that in rural areas, the 1958 fire death rate was almost double that in urban areas. He states that this cannot be directly attributed to lack of fire protection and police facilities. Rather it points to all too prevalent conditions of substandard construction and substandard installation of heating and electrical equipment. Commissioner Thomson says the remedy is obvious — effective building regulations properly enforced.

Commissioner Thomson also notes that over 40 per cent of the total loss recorded was by fires causing $50,000 damage or more. This underlines the need in the larger properties for better design, construction and operating practices, and emphasizes the vital role of fire protection engineering.

Waterloo, Iowa—Chief Ray Tiller reports estimated fire losses of $582,383.45 (two losses estimated) and a per capita loss of $7.77. He recommends the adoption of a modern fire prevention code and establishment of a fire prevention bureau directly under the chief of department.

Milwaukee, Wis.—Chief Edward B. McCabe reports that the department responded to 10,849 alarms, of which 2,911 were for fires. Total fire losses amounted to $2,626,971.67, a decrease of 1.3 per cent from 1958's losses. A high-pressure truck was placed in service during 1959.

Hampton, Va.—Fire Marshal F. F. Hopkins reports that, while alarms for fire increased by 17 per cent over 1958 and building fires increased by 58 per cent, property losses decreased by 20 per cent.

Springfield, Ohio—Chief Willard G. Compton reports that for the third consecutive year there were no major (general alarm) fires in the city. The department received a new 1,250-gpm pumper during 1959.

Honolulu, Hawaii—Chief William K. Blaisdell points out that the impact of the Jet Age and acquisition of statehood have resulted in a tremendous expansion in industrial and residential development. Honolulu has entered an unparalleled era of building construction, diversified manufacturing and tourism which have created new challenges. The department is geared to meet these, Chief Blaisdell states, through projected

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Fire & Safety, Inc. of Minnesota
1908 So. Broadway—
210 3rd St., SW Rochester, Minn.
Phone: ATlas 9-5476, 9-3322

Pyrene-CO Two Extinguishers
Barton American Fire Pumps & Trucks
Fyr Fyter Hose & Accessories
Federal Sirens & Lights
Stephenson Corp. Resuscitators
Janesville Coats & Bullard Helmets
Servus Boots
Andersen Fire Equipment Inc.
2421 Farnam Street
Omaha, Nebr. Tel: 342-4509

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From Largest Stock!
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Los Angeles 15, Calif.
Phone: RIchmond 7-6543

"Forced-Air"
Smoke Exhausters
⅓ H.P. motor
5000 C.F. per minute
$95.00
THE NEEP EQUIPMENT CO.
Fire Fighting Equipment
326 N.W. Broadway
Portland 9, Oregon

station sites and facilities, improved apparatus and equipment, and thorough training of personnel in all phases of fire prevention and fire fighting.

Rockford, Ill.—Chief Wayne E. Swanson reports 597 building fires, 196 outdoor fires and 198 vehicle fires. Total fire losses amounted to $417,968. Seven major fires during 1959 accounted for $306,000 fire losses. Of this total, $53,800 was directly attributed to sprinkler water loss.

Davenport, Iowa—Chief Lester R. Schick reports total fire losses of $226,680.78 for the year ending March 31, 1960. The department responded to 1,100 alarms, of which 474 were for actual fires. Of the 192 building fires, none extended beyond the building where it originated and only one extended beyond the floor where it originated. Chief Schick urges a thorough study of the department and a program of capital improvements because of recent annexations and rapid growth of the city.

Charlotte, N. C.—Chief Donald S. Charles reported that the department answered a total of 3,040 alarms. Total fire losses amounted to $710,686.64. Chief Charles recommends that the city expand its fire fighting facilities to provide protection to recently annexed areas. He advises continuing the replacement of old apparatus by purchasing a minimum of one piece of equipment each year. He also recommends the purchase of 20 new alarm boxes yearly for installation in new schools and subdivisions periodically added to operations.

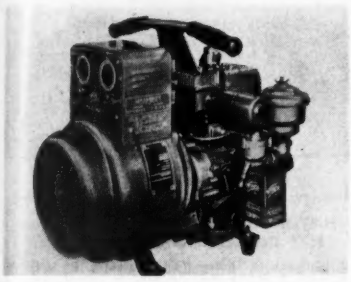
Midland, Tex.—Chief J. M. Little reports that the department responded to 874 alarms, of which 686 were for actual fires. Of the fires, 401 were extinguished with booster streams. Total fire losses amounted to $282,407.01.

Lubbock, Tex.—Chief Glenn W. Smith reports that the department answered a total of 1,784 alarms. Booster lines were used 1,763 times. The report contains a brief history of the department, marking its golden anniversary. □□

MANUFACTURERS' NEWS

Continued from page 45

New Winco Series



Wincharger Corp., East 7th and Division Streets, Sioux 2, Iowa, has announced the "31" series of portable electric power generators. Said to be rated at 2,500 watts at either 115-volts or 230-volts, the unit is equipped with "Maxi-Watt" power control and "Automatic Conserv-er" idle control.

Appointments and Promotions

Miller-Meteor Northwest Ltd., 6576 Lime Street, Vancouver, B. C., has been named as west Canada distributor for ambulances by the Miller-Meteor Div., Divco-Wayne Corp. The company will cover British Columbia, Saskatchewan, Alberta and Manitoba, all previously serviced by a single all-Canada national distributor.

John B. Russell has recently been named sales engineer in the State of Connecticut by the Gamewell Company, Newton Upper Falls 64, Mass. He was formerly assistant to the industrial sales manager.

Gordon D. Riedell has been appointed personnel director of the company. He joined Gamewell after serving most recently as personnel manager of the Farrington Manufacturing Company, Needham, Mass.

Robert W. Reinicke has been named vice president of operations, Ansul Chemical Company, Marinette, Wis. He comes to Ansul from Ekco Products in Chicago, where he had served as vice president, engineering.

C. Wesley Michaels has been appointed manager, planning and market research, Industrial Electronic Products, Radio Corporation of America, Camden, N. J. In the newly created post he will be responsible for coordinating market planning and research.

Richard E. Miller has been appointed product line manager for eye and face protection equipment by Mine Safety Appliances Company, Pittsburgh. He will supervise sales of the company's new Sightgard line of spectacles, goggles, face shields and similar products.

James V. Carlin, Jr., has been appointed vice president of sales, Acme-Hamilton Mfg. Corp., Trenton, N. J. He was formerly general sales manager for the Acme Rubber Manufacturing Company, a division of Acme-Hamilton.

Publications Available

Mercer Rubber Co., Hamilton Square, N. J., has released a two-color, 24-page catalog which contains complete descriptions of over 35 specific types of hose used throughout the manufacturing and processing industries, utilities and municipalities.

Atlas Safety Equipment, Inc., 175-179 North 10th Street, Brooklyn 11, N. Y., has published an illustrated 25-page manual on the use, care and maintenance of life saving nets.

Sperti Faraday, Inc., Adrian, Mich., has published a new two-color, 88-page manual describing air and electric signal systems and listing specifications of horns, bells, buzzers, chimes and sirens. Ask for Catalog 160.

Divco-Wayne Corp., 22000 Hoover Road, Detroit, Mich., has published a new booklet describing the company's new lease plan for truck users. The program is operated through a subsidiary, Divco-Wayne Sales Financial Corp.

Monatco Mfg. Corp., 2214 Front Street, Kansas City, Kans., has issued a brochure describing the features of its type MFG 9000 crash fire control units formerly known as type 0-15-L. Included are case histories of the apparatus' operation.

Motorola Communications and Industrial Electronics Division, 4501 West Augusta Boulevard, Chicago 51, Ill., has published a new booklet describing all two-way mobile radio base station equipment available from the company. The catalog contains specifications and photographs of upright cabinets, remote control and desk top consoles, special AC utility base stations, various base station antennas, monitor receivers and "Quik Call" selective signalling systems.

Milwaukee Electric Tool Corp., 5316 West State St., Milwaukee 8, Wisc., has published an attractive new general catalog describing its complete line of heavy-duty tools. Ask for G6-(1).

Roberts Co., Box 44A, Wayland, Mass., has published a new catalog of fire service gifts, awards and promotional material. Items included are weathervanes, fire mark replicas, jewelry, children's badges, etc.

Manufacturing Chemists' Association Inc., 1825 Connecticut Avenue, N. W., Washington 9, D. C., has published a new safety data bulletin SD-78 for butyraldehydes and a revised bulletin SD-1 on formaldehyde, as well as SD-80,

HAVE ENHANCED
SUCCESSFUL CAREERS
THROUGH THIS UNIQUE
DELEHANTY COURSE
of

Advanced Professional Training

Study at Home in Spare Time!

"The Science and Technique of

FIRE

PREVENTION, PROTECTION and EXTINGUISHMENT"

The Established Proven Way

- ***To Prepare for*** **PROMOTIONAL EXAMS**
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Nationally recognized authorities on Fire Fighting ... as well as thousands of Delehanty graduates ... agree that our course is the only professional home study program that covers all Fire Fighting subjects thoroughly and accurately. You are assured that as a Delehanty student you will have the close personal supervision of competent experienced instructors and realize the maximum benefit from your training.

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OVER 80% *of N.Y. City's Firemen are Delehanty Trained!*

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AFTER-FIRE ODOR ELIMINATION

Moderate investment for supplies & equipment, advise rank and how long with department. Some territories open.

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division
Tibor-Terry Corporation
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Chicago 51, Illinois

Products used exclusively in middlewest by Underwriters Salvage Company and many fire departments.

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Conversation piece. Cast aluminum replica of 1900 model. Hydrant-ladder & hook-FD and an engraving plate cast into the trumpet. Complete with 6' Golden yellow rayon cord and tassels $62.50.

Long Island Metal Emblem Co. Inc.
Merrick, L. I., New York

"HOME FIRE DRILL" SLIDES

Set of 36 35MM (2x2) colored slides with script. Excellent for promoting your department's home fire safety program. Write for free copy of script and prices.

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1947 Seagrave 85 Ft. tractor aerial ladder truck complete with all standard equipment, ladder pipe, siamese, semi-cab, equipment compartments, in good condition; Village purchased new 100 ft. aerial due to building expansion. Mack Trucks, Inc. 58-40 Borden Ave., Maspeth, 78, New York, Attention Karl Thuge; Pumpers and Ladder trucks (used) also available. Contact us quickly for additional details and photos.

FIRE TRUCK BARGAINS

1960 Ford, Chevrolet, or International Class A Pumper with 500 GPM Pump and 500 gallon Tank built to Underwriters Class A Requirements, for only $7,000.00

NEED a siren or Red Light? Consult my low prices on TOP QUALITY USED SIRENS AND BEACON RAY LIGHTS. Trade-ins accepted.

Terms arranged if desired.

EDWIN R. JENNY
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Fort Myers, Fla.

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FIRE DEPARTMENT PLACE MATS

9 Different to choose from. Matching PLACE CARDS & NAPKINS. Samples on request
FREE BROCHURE OF OUR FAMOUS
FIRE DEPARTMENT GREETING CARDS

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DEPT. F BALSAM LAKE, WISC.

ABSOLUTELY FREE

Yours for the asking. Send post card today requesting Folder F showing complete line of belt buckles with your name, initials, latest Fire Engines, Pumpers, Hook and Ladder, Rescue Wagons, Salvage Trucks and other Firemen enameled emblems which are also available on Tie clasps, Lapels, Money clips, Cuff Links, and Key Chains. Write:

HOOK-FAST SPECIALTIES
Box 1425 Providence, R. I.

FOR SALE 1939 SEAGRAVE QUAD

750 GPM—16,500 miles—219 ft. of ladders. Equipped with 60 AMP ALT. Siren, Flashing Lights, 150' Booster. Hose and all new tires.

TRUCK NOW IN SERVICE

To see or for more information
Contact
WEST ANNAPOLIS FIRE DEPARTMENT
501 MELVIN AVENUE
ANNAPOLIS, MARYLAND
COLONIAL 3-4466

ADVERTISING

on this page

BRINGS RESULTS

chlorine, a 25-page booklet. All provide information on properties, potential hazards, fire fighting, etc. SD-1 and SD-78 are available for 30 cents each. SD-80 costs 50 cents.

R. D. Werner Co., Inc., P. O. Box 580, Greenville, Pa., has published a new folder of its full line of UL-listed Aluminum ladders.

Super Vacuum Mfg. Co., Inc., 975 Grant St., Denver 3, Colo., is offering a 14-page booklet on the principles and operational procedures of eliminating smoke from confined areas during fires or other emergencies. Ask for "Booklet 58."

Mine Safety Appliances Co., 201 North Braddock Avenue, Pittsburgh 8, Pa., has published a broadside describing four sizes of first-aid kits packaged in all-weather cases, ranging in size from 10 to 36 units. Ask for No. 0401-10.

Metal Lath Manufacturers Assn., Engineers Building, Cleveland 14, Ohio, has published Technical Bulletin No. 7, which gives engineering data on the use of metal studs in non-bearing partition walls.

Walter Kidde & Company, Inc., 675 Main Street, Belleville 9, N. J., has issued a new two-color chart explaining the three classes of fire and approved extinguishers for use on each.

Alderson Research Laboratories, Inc., 48-14-33rd Street, Long Island City 1, N. Y., has published a new catalog of its complete line of realistic first-aid training devices. Included are a rescue breathing trainer, injury moulages and other items. Ask for bulletin No. 31.

Wm. A. Holmin Corp., 1212 Eleventh Street, Rockford, Ill., has published a two-color broadside on its new Voice Gun transistorized power megaphone.

D. W. Onan & Sons Inc., Minneapolis 14, Minn., has published a two-color folder describing its new transistorized 1 KVA inverter unit designed to instantly switch radio communications systems to stand-by a.c. power on interruption of commercial power. Ask for Folder M-110.

Koppers Company, Inc., Wood Preserving Division, 750 Koppers Building, Pittsburgh 19, Pa., has published Bulletin W-365 concerning "Non-Com," a fire-retardant chemical for pressure-impregnating wood building materials. Wood roof deck and support material treated with the chemical carry a UL rating and Factory Mutual and Factory Insurance Association approval.

The General Electric Co., Electronic Components Division, Owensboro, Ky., has published a revised edition of G-E's "Tungar Bulb Data Manual." The eight-page brochure features descriptive and theoretical data on the use of Tungar bulbs in rectifier circuits. Ask for ETR-2091.

The Armstrong Cork Company, Lancaster, Pa., has released a 16-mm sound motion picture introducing its claimed fire-safe acoustical tile ceilings for commercial, institutional and industrial buildings. The film explains how rated fire protection for steel supporting members or metal decks may be achieved by using prefabricated acoustical tile ceiling. The 18-minute film may be obtained on a free-loan basis for group showings.

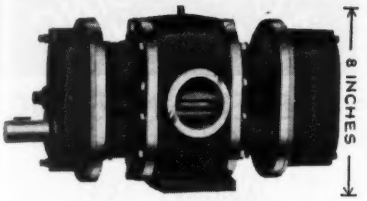
Circle Seal Products Co., Inc., 2181 East Foothill Boulevard, Pasadena, Calif., has issued a four-page booklet containing technical data and operation principles, and how-to-order information of its check valves, relief valves, shutoff valves, etc.

The Foster Co., Inc., 430 Notre Dame Street, New Orleans 6, La., has published a two-color brochure describing its line of Dixie-Dri salvage covers.

National Equipment Rental, Ltd., Floral Park, N. Y., has published a two-color brochure which explains its leasing plan for fire apparatus and other municipal vehicles and equipment.

Fire-End Products, 656 Gerard Avenue, New York 51, N. Y., has issued a new 64-page catalog of its line of fire fighting and safety equipment. Ask for Catalog 79. □□

Precision Built



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PUMP

"Gives years and years of dependable, maintenance-free service under the most rugged operating conditions."

Order from your local dealer, or write

LEONARD PUMP, Div.
Electro Switch Corp.
167 King Ave. **Weymouth, Mass.**

The Fireman's Choice

Powerful Light
When he needs it—where he needs it
Big Beam
PORTABLE ELECTRIC HAND LAMPS

Model 700-A
2000-foot beam

Most powerful, heavy-duty hand lamp of its size. Adjustable 6-inch head. Operates on four standard No. 6 dry cells.

Model 211
1500-foot beam

Popular price, light weight, easy to carry. Adjustable 5-inch head. Holds two standard 6-volt lantern batteries. Operates on one; other is a spare.

Write for folder on complete information on these and other Big Beam dry-cell and storage-battery models.

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1041 West Hubbard St., Chicago 22, Illinois
In Canada: Bernard Marks & Co., Ltd.,
32 Alcorn Ave., Toronto 7, Ontario

FIRE COLLEGES

Central Western Fire School—Apr. 8-9, West Alexandria, Ohio. For information, write Chief W. H. Cheesman, 309 Briarcliff Road, Dayton 15, Ohio.

Fire Department Instructors Conference—Feb. 28-March 3, Memphis, Tenn. For information write Harry H. Wolff, Conference Secretary, P. O. Box 1089, Chicago 90, Ill.

Indiana Fire Service Training Program—Jan. 16-20, Fire Instructors Course; Feb. 7-9, Fire Administration Course; Apr. 4-6, Industrial Fire Course; Apr. 24-28, Arson Investigators Seminar; May 15-19, Basic Fire School; June 6-8, Rescue Training Course; Sept. 13-16, Indiana State Fire School; Oct. 30-Nov. 3, Fire Inspectors Course. All courses to be held at Purdue University, Lafayette, Ind. For information write, Professor Shelby Gallien, Director, Public Safety Institute, Division of Adult Education, Purdue University, Lafayette, Ind.

Maryland Industrial Fire Protection Short Course—Feb. 9-11, Fire Service Extension Department, University of Maryland, College Park. For information, write Robert C. Byrus, Director, Fire Service Extension Department, P. O. Box 85, College Park, Md.

Morris County Fire School—February 7, District #6 Fire Headquarters, Parsippany Troy-Hills; March 7, Budd Lake Fire Headquarters. For information, write Robert H. Wright, Long Hill Lane, Chatham, N. J.

North Dakota Fire Offices Conference—Mar. 27-29, Memorial Building, Jamestown, N. D. For information, write Chief Percy A. Wellman, Fire Headquarters, Jamestown, N. D.

South Carolina Firefighters Training Program—Dec. 19-23, Wade Hampton (Greenville); Jan. 2-5, Summerville; Jan. 9-13, Cayce; Jan. 16-20, Darlington; Jan. 23-27, Maulden. For information, write: H. B. Wells, Instructor, "Shady Springs," Route 1, Box 119, Prosperity.

Southern Wisconsin & Northern Illinois Fire School—September 10, Green County Fair Grounds, Monroe, Wis. For information, write Herman Pfund, New Glarus, Wis.

Coming Events

Feb. 6-8—Association of Fire Districts of the State of New York. Annual meeting, Hotel Buffalo, Buffalo, N. Y. For information, write James H. Holmes, President, 511 University Avenue, Buffalo 23, N. Y., or Stephen P. Fox, Secretary-Treasurer, 77 Paul Avenue, New Hyde Park, L. I., N. Y.

May 21—Southern Wisconsin & Northern Illinois Firemen's Association. Annual meeting. For information, write Herman Pfund, New Glarus, Wis.

June 24—Central Western Firemen's Association. Annual meeting, Spencerville, Ohio. For further information, write Chief Kent Shoemaker, Oxford, Ohio.

July 13-15—Ohio Fire Chiefs Association. Annual meeting, Cincinnati, Ohio. For information, contact Chief Dan Vogel, Cincinnati Fire Department or W. H. Cheesman, Secretary, 309 Briarcliff Road, Dayton 15, Ohio.

FOR HEAT EXPOSURE PROTECTION

SPECIFY TYPE 82
for protection from radiant heat

APPROACH SUIT

The 3M aluminized fabric in the Janesville suits reflects away 90% of the radiant heat. Ideal for "hot" fires." Durable apparel. Lightweight.

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We recommend our Type 82 suits as approach and proximity garments. The Janesville label is your guarantee of quality.

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FIRE EQUIPMENT ORDER YOUR UNIFORMS AND EQUIPMENT FROM ONE RELIABLE SOURCE

RUSSELL UNIFORM Company NEW YORK

RUSSELL UNIFORM CO.
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Please rush at once your big 76 page catalog on fire equipment and uniforms.

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Address .....
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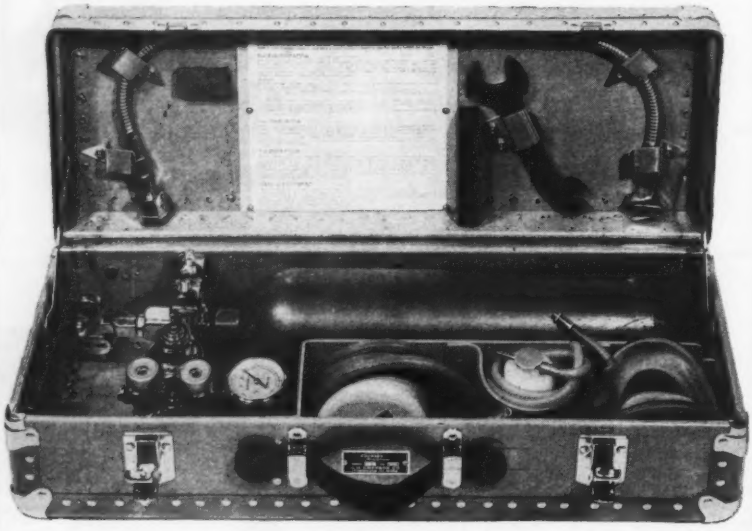
EMERSON
Resuscitators

Twin-Yoke "Fetherweight"



Here is Emerson protection that can go in the Chief's car or any other vehicle. Most compact of all . . . only 25½ x 9½ x 6½ inches . . . the Twin-Yoke "Fetherweight" is light to carry and quick to get into action. It is ideal for the first man on the scene . . . and permits protection on more than one side of the fire.

The single "D" tank will give better than 20 minutes of resuscitation using a pure-oxygen mechanism, or 40 minutes with an air-mixing type. For long cases a second "D" or "E" tank can be fitted in the yoke (nose to nose) or a large tank can be used, if a flexible connector is provided.

And the price is right — $245, f. o. b. Cambridge (less tank and connector)

See your Emerson representative or write:

J. H. EMERSON CO.
CAMBRIDGE 40, MASSACHUSETTS, U. S. A.

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JANUARY, 1961

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HOUSTON - - - - - Another CIRCUL-AIR "Repeater"

The opening of another five (5) engine houses this year brings to a total of fourteen (14) the number of Houston's fire stations which Circul-Air their hose. Each of this department's new structures is equipped with the CIRCUL-AIR "Full Treatment."

Our congratulations to Chief "Rip" Bullock for the progress he has made in his expansion program. We are proud to participate in giving his department "The Forward Look."

Chief Claude M. Bullock
Houston, Texas, Fire Department

OVER 6000 Fire Departments CIRCUL-AIR Their Hose

The ORIGINAL Electric Hose Dryer

- Eliminates Ugly Unsafe Hose Towers
- Dries Hose in a Few Hours
- No Radiant Heat — Can't Injure Hose
- Dries Fire Clothing, Too
- Keeps All Hose Ready for Service
- Reduces Station Construction Cost

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"Automatic" FIRE HOSE WASHER

WASHES • RINSES • DRAINS

- Hose is Self-propelled • One-man Operation
- Washes Uniformly — Including Edges
- Uses Clear Water or Detergents
- Drains Hose Linings, Too • Portable

Porto-RAK

MOBILE HOSE STORAGE AND LOADING UNIT

- Racks 1800 ft. 2½" Hose
- Equipped with Locking Casters
- Detachable Turn-table to Re-load Truck
- Stores in a 9 ft. Space
- Moderately Priced — Shipments from Stock

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THE CIRCUL-AIR CORPORATION 575 EAST MILWAUKEE DETROIT 2, MICHIGAN

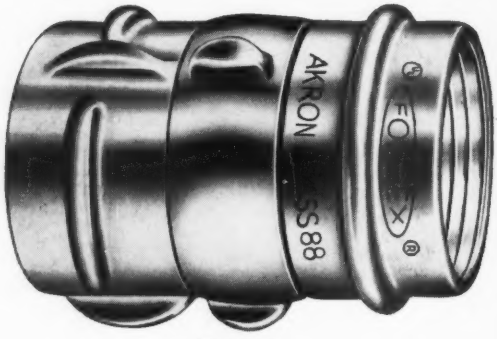
Write for **COMPLETE DETAILS**

AKRON'S TOUGHER
FORGED COUPLINGS

Tapered hose bowl grips like a vise!

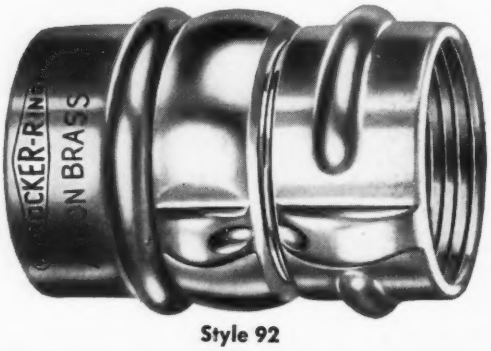
The hose will blow before the coupling will go!

FORGEX®



Style 88

ROCKER-RING®



Style 92

Drop-forged under the tremendous force of hydraulic presses, Akron Rocker-Ring and Forgex couplings give you greater density, strength and toughness . . . the trouble-free service you're looking for.

Two models for you: the lightweight, three-lug Forgex, and the heavy-duty two-lug Rocker-Ring . . . both guaranteed to give you complete satisfaction.

Brass—reinforced with manganese—drop-forged Rocker-Ring for added protection to threads and swivel—for added strength in the hose bowls

Tapered hose bowl holds hose in vise-like grip—no slipping at any pressure

High pressure—the hose will blow before the coupling will go

Threads—any 2½" and 1½" threads

Hose—fit all fire hose

Higbee thread and indicators

Underwriter's listed

— FORGEX® ROCKER-RING 3-Lug Coupling. Forgex comes in the smaller hose bowl sizes, perfectly tailored for the new lightweight hoses. A lightweight, tough, three-lug, drop-forged coupling for use on all 1½" or 2½" fire hose—dacron or cotton—any thread. Satin finish. Brass with manganese.

— ROCKER-RING® 2-Lug Coupling. The heavy-duty drop-forged coupling for departments that want the best where service is the toughest. Satin finish. Brass with manganese.

Style	Size	Rockerlugs	Length	Weight Lbs.
88	1½"	3	4½"	2⅛
88	2½"	3	5⅛"	4½
92	1½"	2	4½"	2¾
92	2½"	2	5¾"	6⅞

See New Akron Brass Catalog 60—Page 62

AKRON BRASS
FIRE FIGHTING EQUIPMENT

AKRON BRASS MFG. COMPANY, INC.
WOOSTER, OHIO
AKRON MFG. (CANADA), LTD.
AYLMER, ONTARIO

SPECIFY AKRON BRASS — FOR BETTER FIRE FIGHTING EQUIPMENT